

INDUSTRIAL STUDY OF POWER HAND TOOLS  
FOR  
THE DEPARTMENT OF REGIONAL ECONOMIC EXPANSION  
QUEBEC REGION

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C22  
I44

No. 4180

*Presidential Services Ltd.*

*Presidential Consultants*

*Presidential Services Ltd.*

*Presidential Consultants*

SUITE 400  
2015 PEEL STREET

MONTREAL, QUEBEC  
TEL. 1-514-288-6161

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Mr. Roger Fournier  
Senior Industrial Analyst  
REGIONAL ECONOMIC EXPANSION  
800 Place Victoria  
C. P. 247, Chambre 4328  
Montreal, Quebec  
H4Z 1E8

Dear Mr. Fournier:

It is our pleasure to present this industrial study of power hand tools prepared under the authority of Contract 4180 for The Department of Regional Economic Expansion for Quebec.

If we can be of further service with regard to this report or other information related there to, please call upon us.

Thank you.

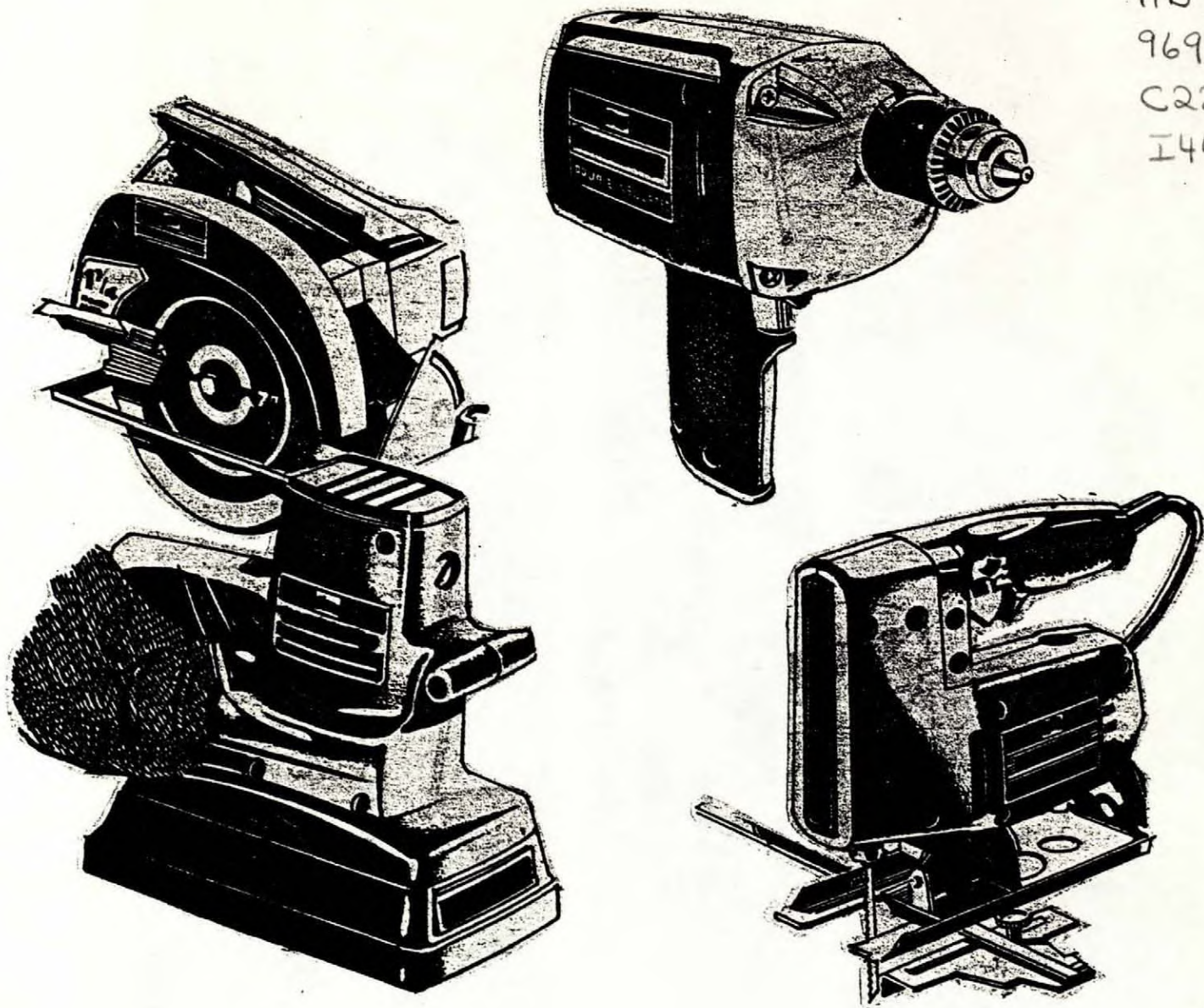
Yours sincerely



Glenn C. Wilhide  
Vice President

GCW/df

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TABLE OF CONTENTS

TABLE OF CONTENTS

	<u>PAGE</u>
Introduction	1
Terms of Reference	3
Summary & Conclusions	5
Recommendations	24
Marketing	39
Manufacturing	47
Customs/Tariffs	58
Power Tool Industry Statistics	
Canada	63
United States	134
Japan	231
Labor Rates	252
Transportation	253
Currency & Exchange	254
Bibliography & Sources	256
Glossary of Terms	257

INTRODUCTION

## INTRODUCTION

This report covers the power tool industry in Canada and to an extent in the U.S. with regard to the major producers and their products.

The power tool industry is large and complex. Sales in the U.S. are estimated to reach \$1.9 billion by 1985. The figure worldwide is unknown here, but it must be even larger.

The product ranges are very extensive, putting to power almost every conceivable kind of work once performed only by hand. The manufacturing processes and industrial engineering techniques utilize the most advanced methods available to the industrial world.

All of this is supported by private company, institutional and government funded research and development programs.

The industry, with its beginnings in the early 1900's, has grown in size to include many manufacturers of all size around the world.

A trend has developed, however, since World War II, for certain companies to emerge as the leaders and trend setters.

In Canada and the United States, the large Black & Decker organization is clearly the dominant one for this industry. This group holds by far, the largest share of the Canadian market and also the largest share of the United States.

It will be interesting to see how the industry "sorts out" in the future and which companies will share the bulk of the market.

Information is not easy to come by, especially for the Canadian market - possibly because the market is dominated by a few and there is little advantage to be gained by making it all available to the public. The information available from Stats Canada and other Canadian sources is somewhat limited, possibly for similar reasons.

In many cases, it is necessary or advisable, to look at the United States figures available and extrapolate or average for Canadian purposes. Since the two markets are so similar, this is reasonable.

The report of a general nature, though limited in specific categories, does indicate that a large power tool industry does exist in Canada and the United States and a producer could locate in Quebec and share this market and export to other world markets, particularly if he adopted the already tried and successful global mandating program.



TERMS OF REFERENCE

SECTION 1TERMS OF REFERENCE

The hand power tool market is growing in North America at a faster rate than manual hand tools. There are no enterprises in Quebec that manufacture these products.

The purpose of this study, is to define the potential of the market in Quebec and Canada and the possibility of manufacture and export marketing of such products by Quebec.

For the purpose of this study, the following categories of hand tools will be considered.

1. Drills -- Variable speed/reversing  
Percussion  
Screw Drills
2. Saws -- Circular  
Jig
3. Sanders-- Orbital  
Belt  
Circular
4. Planners

This survey will include the following undertakings.

1. Evaluation and appraisal of types of hand tools in each category with respect to similarity and co-ordination of manufacturing functions.
2. Market Total: Determine the quantity of imports and exports by product and by country of origin.
3. Identification of the manufacturers in:
  - Quebec
  - Ontario
  - Canada
  - United States

Assessment and review manufacturing sources in Quebec who could possibly produce such products in the Province.

4. Interview and review major market distributors the sales potential of produce together with possible advantages of "Made in Quebec" and the importance of price versus quality.
5. Identification and contact with certain exporters from the United States and C.E.E. who have a business office in Canada and who might be interested in licensing their product for manufacturing in Quebec.
6. Conclusions and recommendations.

SUMMARY & CONCLUSIONS

SUMMARY AND CONCLUSIONSIN BRIEF

1. The Electric Power Tool Industry in North America is largely estimated to be \$1.9 billion dollars by 1985. Increasing at a rate of average of 7.5% per year.
2. The Power Tool Industry is a stable growth industry equal to or ahead of economy.
3. Power hand tools in six (6) separate markets:
  - Home workshop - hobbyist
  - Professional service trades
  - Construction
  - Industrial
  - Automotive after market
  - Service, parts, accessories
4. By 1985, Electric tools will account for 70% of the power tool market and are increasing.  
  
Pneumatic at 30%  
  
Electric tools increased to 41% of non power tool market.

5. Black & Decker is the dominant producer in North America and the world. \$1.4 billion sales for 1980 worldwide. Black & Decker Canada is estimated at \$150 million sales worldwide for 1981.

6. Major name North American producers:

Black & Decker

Skil

Craftsman (Singer)

Rockwell

Stanley (Power tools now owned by  
Bosch/Germany)

7. Manufacture in Canada:

Black & Decker (dominant)

Skil

---

Singer-Quebec (former manufactured  
for Craftsman)

Stanley-Quebec (formerly U.S. power  
tool division sold to  
Bosch/Germany)

---

Others - limited to chain saws, specialty  
items and parts.

8. Canadian market estimated in excess of \$150,000,000.

9. Power tools are sophisticated products in design and manufacturing process.
10. The standards for manufacture are high.  
Black & Decker is a leader in production methods, productivity and cost control.  
Global mandating patterns and strategies are well established by Black & Decker and growing on a worldwide basis.
11. Global mandating is the only way a company could enter and service in this industry.
12. Opportunities might exist in the industrial and professional tool fields because of the apparent Black & Decker drift away from them.

Milwaukee	Bosch
Skil	Holz-Her
Makita	
Rockwell	

13. Distribution is in place on national scale -  
closely related to U.S. methodology organized to  
market on a continental basis. Can control public  
image and impression of product.

14. Quebec is a viable regional possibility for entry  
of a manufacturer on this basis.

European  
United States  
Japanese

would require assistance and cooperation.



THE POWER HAND TOOL INDUSTRYGENERAL

The power hand tool industry is composed of approximately 70 companies operating in over 100 plants, most of which are located in the north central region of the United States. These plants are employing over 22,000 workers, primarily involved in the production of power hand tools for the consumer, the industrial, the construction and automotive markets.

In addition, in Canada, there are two plants producing power hand tools, namely Black & Decker in Brockville, Ontario, with 1,200 workers, and Skil Manufacturing Company in Toronto with approximately 170 employees.

This industry is advancing in technology compatible with similar products of the age. Power tools are becoming smaller, lighter, more powerful and reflect the advanced techniques of manufacturing and development indicated by space age technology. Cordless drills and space age tools which have gone to the moon have added to the market place.

To survive and grow, heavy investment is required for new product development, advertising the promotion programs to ensure a secure place on the market. In addition, new manufacturing technologies and equipment have become available, necessitating plant change-overs and additional equipment.

Only the strong well financed organizations can survive. Price competition on the market place is very strong. Black & Decker with its huge international distribution network sets a pattern in this respect.

In recent times, a major trend has developed toward a larger contribution to company sales and profitability from foreign subsidiaries. Therefore, most major companies and all multi-national oriented companies are turning abroad for additional sales growth. European and Japanese are turning to North America and the North American companies are turning abroad. Sales companies have been established in most market places of the world and where volume is sufficiently large, branch plants have been established in many cases.

Those companies who are engaged in global mandating pay particular attention to host company specifications so that a standardized product can be altered slightly to meet the specification requirements of the host country.

Amongst the U.S. producers, there is a significant concentration of shipments and sales and a limited number of producers. The top four power tool manufacturers accounted for 61% of the total electric hand tool sales in 1972 ( the latest year available). Black & Decker Canada has substantially increased its sales position with the expansion and development of its

Canadian operation with global mandating since 1968, so there is no reason to believe that the trend would have altered in any way and this factor is probably continuing in the same direction.

Because of the kind of competition and the heavy investment required for development and maintenance of market, many of the lesser producers have been acquired for diversification and acquisition purposes by other industrial concerns.

The industry has developed to an increasing level of concentration by a few major producers and a very high level of price competition. Advertising expenditures and marketing promotions have grown steadily over the years. Advertising currently accounts for an excess of 1.5% of annual sales.

Black & Decker is by far the dominant company in this industry. Product development, increased productivity, improved manufacturing facilities and technology, together with a vigorous marketing program have brought better quality, lower cost products to the market place and thus insured Black & Decker of a larger share of the market.

This \$1.5 billion plus power tool industry is very closely related with the growth of the economy and particularly sensitive to the major hand-use markets.

As recently as 10 to 15 years ago, the portable power tools were used mainly by professionals and accounted for perhaps 70% of all units sold, with a balance of 30% to the consumer market. Now the trend appears to be reversed. This change can be explained as developing from a combination of new product development, low cost tools of higher quality, aggressive marketing and the rise and consolidation of mass merchandising across North America. This change has been also true in Canada where the development very closely paralleled the United States.

The movement of the power tool market follows the trends in the construction industrial and automotive activities. It is also reflected with the higher levels of capital investments in the industrial sector which expand the market requirement for the industrial type power tools.

The inflationary spiral and the high cost of home additions and repairs continue to introduce more home owners and young family groups into "do-it-yourself" programs. They naturally require power tools and thus this market has enjoyed a boom.

The market for the home workshop consumer includes drills, circular saws, jigsaws, portable sanders, belt sanders, planners, routers and small disc-grinders. A large assortment of accessories and attachments are provided to further

expand the usefulness of these products.

Years ago Black & Decker took the lead in the drill market by designing and producing a 1/4" drill which could be manufactured at a cost of approximately \$5 and marketed it for \$12 to \$15 at retail (or even better on certain promotions). As a result, this event firmly established Black & Decker in the minds of the tool user and when he returned to the market to buy additional products he required, he naturally returned to the brand of his first choice and of first experience.

As the home worker's interest and experience broadened into more sophisticated projects, he naturally moved to other tools such as circular saws, the jigsaws, sanders and others. This initial stage provided the base for the development of the larger do-it-yourself trend in power tools.

Import of power tools has been a problem in North America since mid-1960. The imports relative to consumption have increased sharply in the past 12 to 15 years from about 2% in 1967 to over 19% by 1977. The principal sources of importations have been from West Germany and Japan; however, since 1968 Black & Decker Canada has joined that group. The Black & Decker global mandating program for Canadian operation has placed this company in a position of being an exporter to the United States and in other parts of the world.

The value of exports of power tools from U.S. have more than tripled since 1977. Canada has been and remains the leading export market for the U.S., followed by West Germany, the United Kingdom, the Netherlands, Brazil and Japan.

Prior to the mid 70s, the retail prices in the power hand tool industry were generally weak, reflecting the very high level of competition in the market place. However, as the inflationary trend in the economy got on the way in 1974-1975, the wholesale prices of power hand tools grew at a fast rate, reflecting material and labour cost increases. As always, the prices of the industrial type tools were well above those of the consumer type products. The principal reason for this was the growing market demand and competition, together with the economies of sales thus generated, which eventually allowed for new product development and cost of production, which brought down the cost of these tools to the consumer.

In many cases, professional users of lighter duty applications found it economically viable to buy and use consumer product tools for their work. They are prepared to buy, use and throw away two or three low cost tools instead of purchasing one of better quality. This provided a good plus to the expanding consumer tool group.

This trend has somewhat disappeared in recent years after many of the users realized it was better to buy a higher quality industrial tool in the first place since it was designed for a more rugged application.

The power tool industry continues to grow and favorable prospects are indicated for the future. However, during the recent periods of slow down in the construction and automotive industries, the specialized market for industrial automotive and construction power tools have suffered. At the same time, the lower cost consumer product tools will continue to hold pace and possibly even grow as more and more do-it-yourself users shift over to doing home repairs on their own and certain marginal industrial construction applications opt for lower cost tools as substitutes to higher priced industrial equipment.

In this respect, an organization such as Black & Decker with a large diversified product line enjoys a very enviable position with the consumer professional and industrial product lines available for the needs of the tool users across the total market place.

It has been estimated that dollar shipments will increase by approximately 7.9% annually through 1985, reaching \$1.9 billion in sales for the U.S. alone. The long term

growth rate has been approximately 7% versus 8.6% growth rate for the period 1970 to 1975 [see chart].

Shipments of power hand tools are increasing at an 8.6% compounded rate for the period of 1970 to 1975 and then experienced a decline of approximately 9% in 1975. In 1976, shipments again showed a sharp rise in response to the excellent performance in construction industry and capital spending by manufacturing firms and the overall improved performance of the economy.

The long term growth rate in this industry has been a little over 7%; however, during the five years from 1975 to 1980, it increased to approximately 7.9% and should continue to 1985, with shipments totalling up to \$1.9 billion.

Electric hand tool market has been the most important growth sector for this industry and it will most probably continue to expand its position. In a large measure, this is because of the increasing importance of do-it-yourself users in the markets, together with a better price and product performance for this range of tools.

Shipments of electric power hand tools account for approximately 65% of the total power tool sales versus 54% in 1947. Pneumatic power hand tools however accounted for approximately 34% of the sales since 1976 compared to only



19% in 1947; however, it is estimated that by 1985, electric tools will increase to approximately 70% of the market with pneumatic accounting for only 30%.

New products to the market place as a result of aggressive and advanced product development programs, are accounting for a further expansion of the market. The new products include electric planners, belt sanders, nibblers, shears, screwdrivers, hammer drills, grinders, nut runners, nippers, etc. The pneumatic industry has fallen behind this growth trend with the possible exception of pneumatic grinders, polishers and sanders.

Power hand tools have also been increasing their share of the market relative to the total hand tool market including non-power hand tools. In 1975, power hand tools represented 41% of the total sales versus 34% in 1958.

Non-power hand tools have lost ground from 67% of the market in 1958 to 59% in 1975.

The low cost drill, orbital sander, jigsaw and circular saw have taken an important place in a market once reserved for hand tools only.

The power tool hand market could be described as containing six separate sectors or groups:

- home workshop (consumer products)
- professional
- construction
- industrial
- automotive
- service and hobbyist

Home workshop (consumer products)

The home consumer product market is now the most popular and public oriented one and has grown from a few small tools in the late 1940s to include almost a full range of power tool products for the growing sophistication of the home craftsmen and the do-it-yourself market.

The product range now includes drills, including variable speed and hammer drills, screwdrivers, circular saws from 5" panel saws to 7" or 8" power saws, single and variable speed jigsaws, orbital and belt sanders, circular sanders, small grinders, planners, routers and range of attachments that 15 or 20 years ago would have been unknown in the consumer product market place.

It is common place for a household to have one or more power tools, generally starting with the ½" drill and certain attachments that could be used to expand its usefulness as a sander or screwdriver; then expanding with other tools as need, interest and proficiency developed.

It is not unusual to find home workshops equipped with a great variety of power tools representing a considerable cash investment as the owners try many new and useful projects to their satisfaction.

The distribution network has undertaken wide ranging improvements to take advantage of this market and further develop the trend. As an example, in Canada such firms as Canadian Tire, Beaver Lumber, Rona, BMR and Home Care Centres, etc., to mention just a few, have modernized and oriented their showrooms and presentation of products in such a way as to more familiarize their clients with power tools available and advantages of owning same.

Without the development of the distribution expertise with regard to the consumer products for power tools and the development of the do-it-yourself market, the very large volumes would never have been realized. As the manufacturers achieved the advantages and economies of scale through their larger volumes in manufacture, the retail and distribution

chains across the country were likewise able to take advantage in the market place through efficiencies in marketing and distribution. The efficiencies of these two groups combined to push the market to new highs.

The distributors as well as the manufacturers who could best organize and co-ordinate themselves for this opportunity were the ones that achieved significant results. Black & Decker and the Sears Craftsman lines are outstanding examples in this regard.

#### Professional

There is a large group of professionals in the industrial market which could be called "service trades" such as, plumbers, electricians, air-conditionings, small cabinet makers, small carpenters, store windows manufacturers, etc. who use a great number of power tools in the course of their activities.

As the product lines in the consumer category or "do-it-yourself" tools expanded and some of these tools at the upper end of the range became more powerful and more sophisticated, many of the professionals started to use these tools in their applications since they were much less expensive than the industrial type tools they were using and in view of the fact that much of their work was of intermittent nature

and did not require continuous duty products, they were totally suitable for their task. An "erosion" into the industrial type product lines sales occurred and the benefits were transferred to the consumer product manufacturing divisions.

This is only one factor, since many of the other tools required in this professional market, such as planers, routers, belt sanders and jigsaws are of the industrial quality.

#### Construction

Currently, this market sector has been depressed because of the down turn in the construction industry in Canada and most of North America; however, when it is again under way, there will be a heavy demand for heavy duty tools of all types and sizes. These include magnetic drill presses, saws, saber saws, electric hammers, drills and rotary hammers.

A specialized tool rental industry has grown to serve the contractors. The tool rental dealers stock a large group of tools, equipment and related accessories. This service has grown substantially in recent years.

#### Industrial

The industrial requirement for portable power tools is heavily fragmented. The major users are - automotive and industrial

manufacturers. Chief applications are in assembly line work. At one time, most of the tools in the industrial applications were of high cycle design; after World War 11, pneumatic tools began to take a place in industrial applications and gradually eased the electrical high cycle units out of existence. Today, however, the high cost of pneumatic installations and the maintenance of air lines has caused another look to be taken. The electrical products are beginning to work their way back into the industry and there is some indication that high cycle may eventually reappear.

#### Automotive Services

Sometimes referred to as the "automotive after-market" this automotive services market deals primarily with the maintenance and repair of the automobile in the body and engine repair shops.

The major tools used in this market are: drills, sanders, grinders, impact wrenches, screwdrivers, nut runners and some motor reconditioning equipment. Pneumatic tools have made important inroads into this market since air pressure is readily available at most of the automotive repair shops. In many instances, drills, impact wrenches, disc and vibrator sanders are powered by air.

Until recent years motor reconditioning was a big part of the business in many small garages and certain manufactueres

provided extensive lines of automotive reconditioning equipment such as valve replacers, valve lappers and grinding machines for reconditioning valves, valve seats and cylinders.

With large and advanced engine rebuilding services available today, much of this business is now performed by manufacturers of rebuilt engines and no longer undertaken by small shops.

Regardless of the product mix and the changes of product through the years, this segment of the market has continued to grow because of the large volume of automobiles on the road. In the United States alone, something in excess of 92 million cars are on the road with an average life span of only six years. Many need attention and repair.

#### Hobbyist

This market has been growing steadily over the years and its products principally range from small high speed hand drills, cutting tools, abrasive wheels, and similar products are used in craft work done by home hobbyists. These are generally not the same products as are used for larger projects as undertaken by the do-it-yourself or home craftsman.

Suppliers for these groups include such companies as: Dremmel, Foredom, Emerson, Weller and Wen who are producing special tools as a complete hobby system.

RECOMMENDATIONS



Recommendations in Brief

1. Global mandating for manufacturing is very important.  
It is as necessary now as it was to Black & Decker in the mid 1960's  
  
Place emphasis on multinational companies doing business in Canada to contribute to the host country.
  
2. U.S. subsidiary plant or sales operations in Canada present an opportunity.  
  
Sources: Skil  
          Craftsman (Singer, Quebec)  
          Rockwell
  
3. Potential development by European and Japanese sources, advantage of lower Canadian dollar/tariffs.  
  
Sources: Makita  
          Holz-Her  
          Bosch
  
4. Black & Decker is possibility. It has major interest in Quebec sales market because with growth trend, they will need to expand in the near future. Has experience and qualifications second to none.

5. Possible acquisition/merger of smaller units into a consortia to base, produce and market globally from Quebec.
  
6. Provide Federal and Provincial assistance and incentives to manufacturers for:

- Research and Development
- Advertising/Promotion
- Marketing
- Manufacturing

7. Develop, expand and promote Quebec procurement advisory program.
  
8. Develop action program.  
  
Promote.  
  
As tariffs equalize, U.S. interest in Canadian production may decline, Europeans may rise however.

## R E C O M M E N D A T I O N S

The following list of recommendations is proposed as ideas and methods which might assist in expanding manufacturing in Quebec and extend the involvement of Quebec industry in the very important power hand tool industry of North America.

### GLOBAL MANDATE

1. The subject of global mandating or world product mandating should be undertaken vigorously at all levels.

There is a clear indication that many people are unfamiliar with the terms "global mandate" and "world product mandate" and do not fully understand the strong implications for Canada now and in the near future, especially with the decline of tariffs under the GATT agreements.

A program of global mandating is essential now for the same reasons it was necessary in the 1960's when Black & Decker started its own program.

The global mandating program must include basically --

- a) The world mandate for a given product or product group
- b) The marketing mandate to develop sales worldwide
- c) An ongoing product development program to assure continuity

d) Sufficient financing to see the program through

Cources of action should be outlined for all levels concerning steps that can be taken to increase involvement by Quebec producers, present or potential, in participating in world markets for products.

The branch plant mentality should be put aside in favor of a global mandating attitude and every step should be taken to uncover possibilities for this type of participation by Canadian - Quebec industries.

#### U.S. SUBSIDIARY - BRANCH PLANT OPERATIONS

2. Identify any and all possibilities among U.S. subsidiary or branch plant operations now in Canada or Quebec, which may be possible candidates for global mandating.

It would be far easier to develop some of these companies on a global mandating basis than to bring in new investments from other countries. The U.S. corporation with a sales market already established in Canada, and in some cases supported by branch plant activities, may be more easily persuaded to support his operation with a Canadian mandate if he could see the wisdom of this type of venture.

Global mandates are not freely granted.

This is especially true when one considers the fact that the tariffs will be reduced under the GATT Treaty and by 1997 a U.S. manufacturer might say: "we can still ship from the States cheaper."

In addition, there is always the problem of losing production hours to Canada in the event of global mandating; so the timing has to be chosen very carefully. Nevertheless, there are very sound political and market reasons why it would be beneficial to U.S. corporations to consider opening a plant in Quebec, as they might consider opening one in certain regions of the United States to serve their markets and, in effect, operate on a global mandated basis there.

The issue is to persuade the U.S. corporation that he can operate a globally mandated manufacturing facility in Canada with equal or additional benefits as he might operate one on the Continent of the United States.

#### BLACK & DECKER POTENTIAL

3. Black & Decker has already demonstrated its confidence in the global mandating system and its willingness to participate in this manner by demonstration of its facility in Brockville, Ontario (Canada). However, there are other possible opportunities in the electric power tool industry as candidates for global mandating. They are listed below

and will each be discussed briefly.

Black & Decker

Singer

Skil Corp.

Makita

Holz-Her

Black & Decker is of first consideration. At first, it is not so obvious because of its location in Ontario, but with a closer look, it could become an "obvious" candidate for the following reasons.

Black & Decker is already established in global mandating and product development programs with a Canadian base. It controls a very large part of the sales market. From a 1979 report of McLean Hunter, it accounts for a market preference of 75.6% of electric drills, 75.7% of electric sanders, and 67.7% of electric saws. Other tools amounted to some 65.9%.

The Black & Decker sales have expanded and most likely will continue to expand. Black & Decker has an advanced product development program at Brockville and already two new important products have been added through global mandating production, for example, the Work-Mate bench and the Work-Wheel power tool. It is conceivable that further new products are and will be included on their product develop-

ment program and will some day be offered to the market place.

The plant at Brockville, Ontario, is nearing 500,000 sq. ft. in size and is probably getting close to capacity. In a short while, with the input of increased sales and increased products, there will be a need for further expansion. It is a marginal view that the plant would be further expanded in Brockville as it may then become too large to be economically viable. Likelihood indicates that a new plant would be located elsewhere. Why not Quebec? Quebec accounts for a large share of its Canadian sales.

The Black & Decker Canadian content for its product line is estimated at approximately 65% of its total. So there is still room for further expansion in this area. The procurement activity is very vigorous at Black & Decker and could be very beneficial to other Canadian sub-contractors as it already is since many products are apparently sourced in Quebec.

4. The Singer Co. of Saint-Jean, Quebec, is another candidate. At one time, this company manufactured some power tools in Canada for Sears and Simpson-Sears organization. It is now understood that these products are all produced in the Singer organization of the U.S.

The Craftsman line is a very important tool line in the market place and probably is only second to Black & Decker. It is not well reported because information is now available from this firm and is not recorded in independent sources. However, the Sears organization has always been a very competitive factor in the power tool industry.

This is a firm with sales volume marketing expertise and product development know-how, who has developed a very important trace in the power tool market throughout North America and the world.

They would be recommended as a very good candidate for a global mandating of a product of this type.

5. Skil Canada Limited is another candidate. They are apparently manufacturing in a limited way in Canada, in Toronto, Ontario. The Skil Company is a subsidiary of Emerson Electric of U.S. This company has a full product line of consumer industrial construction product and probably stands second or third behind Black & Decker, depending on where the craftsman organization falls.

Skil enjoys a market preference of about 20% to 30%, as reported by McLean Hunter survey in 1979, the first one reported being Black & Decker. The Skil reputation and successful product line would make it an excellent candidate for a global mandating situation. The Company has now about 170 employees in the Ontario plant and could conceivably



follow a global mandating plan.

6. The Japanese have long been looking at the North American tool industry and have been generally reluctant to enter the market because of the very competitive nature of this market and the low cost trend which has been experimented by the Black & Decker organization. In recent years however, there have been developments by Japanese producers, mainly in Wakita. This Company has a very large product line and has made in-roads in both the U.S. and Canada. It is understood that their sales volume in Canada is approximately \$9 million Canadian dollars and perhaps this organization would be a candidate for global mandating, except it is noted the Japanese have not yet moved forth with manufacturing facilities and are being pressured to some extent by the Canadian and U.S. governments to establish automotive plants.
7. There are several manufacturers of power tools in Western Europe, mainly in Western Germany, who have supplied products to North America for a long time. Most of these manufacturers however produce high quality and specialty tools designed principally for industrial construction markets. The volume in these products is generally low in so far as the Canadian market is concerned, relative to the rest of the world and when consideration is given to manufacturing possibilities.

One of these producers however, Holz-Her, is a very old and reputed manufacturer in Europe; it has been marketing products in Canada for approximately ten years; they are principally - woodworking and metalworking tools designed for the construction industrial trade. Recently, they introduced a line of lower cost quality power tools which would find their way into the consumer home workshop for the light professional industry. This product group which consists mainly of saws, jigsaws, planers and sanders, could easily provide the base for an exclusive group of tools to be produced on a global mandate for North America.

There is also the possibility that a product line such as this, which is of very high quality and oriented toward the professional as well as the do-it-yourselfer, could be developed in collaboration with one of the major marketing groups such as Black & Decker.

The product line would fit the market and be well exploited by the in place marketing force of the larger group. Such is the possibilities for the multinational groups in the future - a consortia program.

There is every reason to develop an interest in European or Japanese manufacturers to initiate manufacturing and marketing in Quebec.

Quebec is ideally situated along the St. Lawrence Seaway and in a position to serve the major markets of Quebec, Ontario, the United States eastern seaboard and the U.S. Mid-West.

The possibility of the introduction of a European or Japanese manufacturing facility in this region with its attendant competition could well serve as a warning to U.S. corporations with subsidiaries in Canada. In such a situation, they may well be inclined to consider a global mandating situation for one of their branch plant or subsidiary operations here.

#### 8. MARKETING

Provide a vigorous marketing support plan for products made in Quebec with special attention and provisions for the following:

- .. Research and Development of new products, markets and manufacturing possibilities.
- .. Advertising and promotions to create market demand and product acceptance.
- .. Sales and product service training assistance programs.

9. Establish a Quebec Procurement Advisory Program to assist manufacturers and sub-contractors with regard to sourcing in Quebec and Canada.

Services might include:

- .. Advertisement of parts and services available in Quebec by catalogue or other media devices on a regular upgraded, updated basis.
- .. Information seminars, for all interested parties, to exchange ideas and open way to opportunities.
- .. Standardization and value analysis with regard to products, parts and methods which would help expand the manufacturing opportunities.
- .. Analysis of Made in Canada rulings, together with customs tariffs as they affect the "make or buy" decision.

10. PRODUCT RESEARCH AND DEVELOPMENT

Establish a Product Research and Development Program for the hand tool industry through the resources of C.R.I.Q.

Every new industrial breakthrough and development brings the requirement for new tools or special variations of the old.

An advanced R & D program will be one of the cornerstones of every developing industry.

11. TAX INCENTIVE

Provide a tax incentive plan for "Made in Quebec" products and/or a further incentive for products made in Quebec and exported.

12. Require or encourage, by incentive, heavy importers of tools [example: Black & Decker] to source their products in Quebec as much as possible.

Review their performance regularly for ways of providing assistance.

13. CHOOSE THE TIME CAREFULLY

Timing is a most important factor. When everyone needs production hours, everyone wants production hours and at that particular time, it is difficult to get them from the other fellow. Such is the case of global mandating.

Initially, the Black & Decker program for global mandating would never have been successful had it not been timed very carefully for that particular period; in 1966-1967 the Black & Decker U.S. plants were running over capacity and on a back order situation as far as sales and production were concerned. It was therefore an easier decision to allow some of the products go to another subsidiary located in another country. Therefore it is clear that the time be chosen carefully when a subsidiary company such as a Canadian branch plant could obtain permission from its parent U.S. company to global mandate and thus take production hours away from the U.S., which means unemployment.

A possible solution is; new product development with the investment of other foreign producers.

14. The global mandating program applies particularly to the multinational company. Consider the benefits to both the company and the host country.

HOST COUNTRY -

Increased tax revenues  
Expansion of Gross National Product  
Improvement in balance of trade  
Expansion of Industrial/Commercial Sector  
Employment

MULTINATIONAL COMPANY

Improve competitive position in Market  
Increase sales in host market (Made in Quebec-Made in Canada)  
Potential financial assistance  
Improved relation with host country  
Diversification of assets  
Demassification of structure  
Utilization of local work force/consumer  
Possible improvement in transport costs  
Potential incentive benefits (tax, research, training etc.)

MARKETING



THE POWER TOOL INDUSTRYMARKETINGMARKET

"Nothing happens until someone sells something", whether it be an idea, a product or a service. It is this first act which starts the chain of supply moving.

It is very well to keep this point in mind when we consider the possibilities and the scope of the power tool industry as it applies in North America, world wide, and the possible Canadian role with regard to it.

The electric tool market in the U.S. currently is estimated at somewhat in the neighbourhood of 1.5 billions of dollars annually; added to that the 10% Canadian share (these figures are difficult to obtain in exactitude) and we are looking at a market somewhere in the neighbourhood of 1.6 - 1.7 billions of dollars annually.

These figures embrace only the North American market; when one considers the demands of the entire industrialized world, the market potential expands to an even greater degree. In addition, there is the potential and possibility of Third World country developments and their huge requirements for tools of all types.

There are also the related industries to the tool industry covering products such as: attachments, cutting edges, equipment, spare parts and services which are involved. It now becomes even larger.

It must always be remembered that with the purchase of a power tool, two other commitments to purchase are made: (1) the purchase of a power source, whether it be electric, pneumatic, gasoline or other; and (2) the purchase of cutting edge or the work edge that will actually perform the work the tool is intended to do.

Tools in all of their various forms have always been very necessary implements in man's development of his civilization and the maintenance of his culture. Without the tools that we have available to us today, the goods and services, the products that we enjoy and use in our every day life would be impossible. Therefore, tools provide a fundamental basis for a total industrial society.

In recent years, since the end of World War II, because of demands by the general public for improvements in his home and participation in many activities which formerly were relegated to trades, a huge market of "do-it-yourself" has evolved. The rising cost of labour on all fronts has influenced the private individual to expend his own efforts, his own hands to provide many of the things he could not otherwise afford. Therefore, the "do-it-yourself" movement throughout the world has taken

on new and larger dimensions.

Tools are consumable items. They represent a self-replenishing market; some are built better than others and some last longer; however, in the long run, the tool eventually is worn out and must be replaced. The overall market requirement around the world is growing, the product itself wears out requiring replacement; therefore, the industry itself continues to grow as is evidenced by the many successful producers in the field.

It is also important to consider new product development in the overall market concept. As the industrial society expands through new types of goods and services, it is necessary to provide new types of tools to serve them. The allocation of funds and activity to new product development in these areas has expanded the market substantially into areas that were little known or even not considered some 20, 15 or even 10 years ago.

Research and product development with regard to product improvement is also important as it makes the existing product better to perform the services required and thus expands its usefulness and the markets accordingly.

The companies that understand the market characteristics and can take the proper steps to take advantage of the situations,

to a large degree, have a big advantage. Black & Decker is certainly a classic example of this type of operation.

From a marketing point of view, therefore, the following factors are very important:

1. An understanding of the market potential with regard to the general requirement and size, and the nature and trend of the growth.
2. An ability to supply the product requirement, both currently and for the future.
3. The sales structure "in-house" and "in-field" through distribution capable of servicing the market on a current and continuing basis.
4. The ability to develop consumer awareness of the product and services, through institutional and product advertising and promotion of a consistent and quality level over a long period of time.
5. The ability to achieve and to hold a "market following" captive to the product line and thus develop the repetitive sales necessary for business development growth.
6. The ability to produce these products competitively with

other products in the GNP of similar technology.

7. The ability to provide an after sale service organization to serve the market by product types and regions.

Unless these steps can be accomplished, the very best tools or products in the world will be lying on the designer's drawing board or collecting dust in inventory on the shelves.

A good successful marketing system and organization is paramount before a product can achieve any success in the manufacturing and employment development sector.

A very interesting commentary concerning the relationship between the do-it-yourself and the professional service tradesman is quoted from "The Third Wave", the thought provoking book of the 1980's by Alvin Toffler.

"As recently as ten years ago in the United States only 30 percent of all electric power tools were sold to do-it-yourselfers; 70 percent went to carpenters or other professional craftsmen. In a short ten years those figures have been reversed: Today only 30 percent are sold to professionals; fully 70 percent are bought by consumers who, more and more, are doing-it-themselves.

An even more significant milestone, according to Frost & Sullivan, a leading industrial research firm, was passed in the United States between 1974 and 1976, when "for the first time, more than half of all building materials... were purchased directly by homeowners rather than by contractors doing work for them." And this did not include an additional \$350,000,000 spent by the home craftsman for jobs costing under \$25.00.

While overall expenditures for building materials rose 31 percent during the first half of the seventies, those bought by do-it-yourself homeowners rose over 65 percent - more than twice as fast. The change, declares the F & S report, is "both dramatic and continuing."

Another Frost & Sullivan study speaks of the "skyrocketing" growth of such expenditures and underscores the value shift toward self-sufficiency. "Where working with one's hands was looked down upon [at least by the middle class] it is now a sign of pride. People doing their own work are proud of it."

Schools, universities, and publishers are busy offering an avalanche of how-to courses and books. Says U.S. News & World Report: "Both rich and poor are caught up in the boom. In Cleveland, home repair instruction is offered in public

housing projects. In California, owner-installed saunas, spas and decks are popular."

In Europe, too, the so-called "DIY revolution" is under way - with a few variations based on national temperament. (German and Dutch do-it-yourselfers tend to treat their projects very soberly, set high standards, and equip themselves carefully. Italians, by contrast, are just beginning to discover the DIY movement, many older husbands insisting that it is degrading to do the work themselves.)

Once more the reasons are multiple. Inflation. The difficulty of getting a carpenter or plumber. Shoddy work. Expanded leisure. All these play a part. A more potent reason, however, is what might be called the Law of Relative Inefficiency. This holds that the more we automate the production of goods and lower their per-unit cost, the more we increase the relative cost of handcrafts and nonautomated services. (If a plumber gets \$20 for a one-hour house call and \$20 will buy one hand calculator, his price, in effect, goes up substantially when the same \$20 will buy several hand calculators. Relative to the cost of other goods, his price has risen several times over.)

For such reasons, we must expect the price of many services to continue their skyrocketing climb in the years ahead. And as these prices soar, we can expect people to do more and more for themselves. In short, even without inflation, the Law of Relative Inefficiency would make it increasingly "profitable" for people to produce for their own consumption,

thus transferring further activity from Sector B to Sector A of the economy, from exchange production to prosumption."



MANUFACTURING

Commercial and industrial manufacturing presupposes one important factor - someone wants and will buy the product and it can be produced at a reasonable profit - certainly sufficient to justify the investment.

All host countries would like manufacturing within their boundaries because of the many benefits that derive from employment, taxation and addition to the national wealth and technology.

There are important considerations for any potential manufacturer to take if he is to have a successful undertaking.

Market

This subject has been dealt with separately under the marketing section. It is the keystone to a successful manufacturing program.

Is there sufficient value and volume in the market to support the cost of a manufacturing operation and the maintenance of same?

Will the public buy the product? Can the manufacturer obtain and control a share of the market to justify the cost?

Generally this comes first.

Is there continuity in the market for growth and development?

FACTORS:

Market: Is there sufficient value and volume to support the cost of manufacturing operation?

Is there continuity in the market potential for growth and development.

Competition: Are there any patents covering the product?  
Any special technology or special manufacturing processes to give advantage?

Ability to expand to meet the market?

Production: What is cost?

Are the facilities available?

Are sufficient sub contract sources available?

What is the make or buy position on the product?

Engineering: What is the cost and degree of engineering?

... Basic research

... Applied engineering

... Industrial engineering

Service: Is there a need for after sales service?

Cost?

Facilities?

Inventory: What is cost and overall facility necessary  
for warehousing?

Work in progress (WIP)?

Finished goods?

Financial: What is cost of manufacture and equipment?

What is return on investment?

What is earning?

Management: Is there a time and capability to handle  
the product?

General Manufacturing Operations

The following manufacturing operations are necessary for the production of power hand tools.

The equipment and skills are present in Quebec, both for primary producers and sub contract sources.

Forging	Metal Turning a) Single Spindle b) Multi Spindle
Coining	Milling
Upsetting	Broaching
Piercing	Surface Grinding
Heat Treating	Cylindrical Grinding
Tool & Die Work	Punch Press
Grinding	Metal Break
Sanding	Metal Shear
Wire Brushing	Wood Turning Shaping
Tumbling	Assembly
Painting a) Hand b) Electro Static	Inspection
Plating	Packaging
Plastic Molding	Plastic Packaging

There is surplus facility available in some cases - or additional productive capacity can be added to existing facility with reasonable justification in others.

### Manufacturing In Quebec

There is a long standing base of manufacturing resources in the province of Quebec.

The skills available cover the full range of technology necessary to participate in the production of power hand tools.

There is a high level of artisan and quality workmanship.

Seperate lists of Quebec Machine Shops and Quebec manufacturing sources for Hardware, Tools and Cutlery as compiled by Statistics Canada are included.

From the interviews conducted, interest was expressed as to how to expand production or go into new product lines. It is felt that more specific guidance was needed from the various government agencies as to the types of aid that could actually be attained.

The larger firms are engaged with programs to increase Canadian content when and as it is profitable or feasible to do so. If the Company is a U.S. branch plant, there may or may not be a reason to manufacture - but at least there is the option of bringing the product from the U.S.

For the Quebec sub contractor, even though he may have the capabilities to manufacture, it is first necessary to secure enough of the market himself or through others to justify the risk.

The pressures of normal business activities make these programs very difficult undertakings.

There are two ways to participate in this market as a manufacturer.

ONE: As a primary producer of the product, and,

TWO: As a sub contractor to the market.

Quebec and Canada have this structure:

- 1 : Primary or major producers in Quebec
- 2a : Subcontract sources in Quebec and Canada supporting the market and the primary manufacturers.
- b : Subcontract sources outside Canada (U.S., Orient, etc.) supporting the market.

[This latter share is growing.]

To become successfully established, compete in the industry and grow, it would be very desirable, if not almost necessary, to become a fully integrated operation, able to protect and defend itself to all competition.

There are many manufacturer suppliers in the power hand tool industry throughout the world. All contributing to a certain market sector, but as in the U.S., a few control a large sector of the market and have far reaching influence in the market and potential for growth. (See report - General Market Comments -- U.S.).

Such companies necessarily have expertise in such areas as:

Marketing

Engineering and Product Development

Manufacturing and Production

Procurement and Supply

Distribution and Production

Financial Planning and Support

Organization

Regional and International support



The possibilities for Canadian content and expanded manufacturing operations are good for Quebec. The timing may not be perfect at the present time because of general market conditions, but there is a market, personnel, plant and equipment are available.

Further aggressive action on the part of the companies as well as some government assistance could be very helpful. [See recommendations]

In the Company Directory section of this report, are companies that could possibly, or already are, supplying operations to the power hand tool industry.

Unless they have been long established with product lines, few organizations have all of these desirable expertise assets.

Quebec has companies that meet many of these criteria.

### Global Mandating

Manufacturing of portable electric hand tools will not be successful without a carefully planned global mandate program.

A simple definition of global mandate or world product mandate, is as the term suggests - The right or mandate to produce and market a product for the world. To be responsible for and control its destiny.

There are two approaches to global mandating.

- a) The Company already has sole rights to the product and any decisions regarding it, so it can produce and market as it wishes. (or is capable)
  
- b) The Company is a subsidiary or branch plant of a multinational. In this situation, direction or approval must come from the head office before global mandating operations are undertaken.

The requirements are:

Mandate: This status must be obtained and maintained.

It can cover a product, product range and/or region-territory. (Total world if necessary.)

The volume must be large enough to support the latest, most sophisticated manufacturing techniques. Since the customer is already prepared to accept only this type of product.

#### Product Research and Development

The organization must be capable and prepared to undertake product research and development which will through modification insure the product mandated remains competitive in the market place and supply additional products and replacements as the product life declines and other opportunities arise.

#### Manufacturing Technology

The organization must be prepared and capable of maintaining a competitive and productive capacity through renewed capital investment and improved technologies from industrial engineering research and development.

### Marketing

The firm must assure the life of the product through an aggressive marketing program which achieves sufficient market penetration, adequate inventories, satisfactory product service, stable and ongoing advertising and promotion, sufficient sales staff to provide distribution and customer service.

The options are simple but not so easily achieved.

To develop a manufacturing program in Quebec that would be competitive and survive in today's market:

- a) Locate an organization prepared to or be assisted in launching a program similar to the one undertaken by Black & Decker in Ontario. One drawback, Black & Decker has the advantage of 10 - 12 year head start.
  
- b) Persuade the Black & Decker organization to open a satellite plant in Quebec as an additional source or for a specific function to serve Quebec and the North Eastern United States and thus support the Black & Decker Canadian global mandating plan.

CUSTOMS/TARIFF

CUSTOM TARIFFS

## (Electric Tools)

As a most favored nation, the U.S. imports to Canada are currently taxed at 13.6% which will drop to 9.2% by 1987.

It is possible that some items may come in lower or duty free if they are ruled class or kind, not made in Canada, and the company has a dominant share of the market.

Canadian exports of Electric tools and parts to the U.S. are now taxed at a rate of 5.5%. (a decrease from 10.75% in 1968.)

Thus, Canadian shipments to the U.S. have an advantage currently of 8.1% which will drop to 3.7% by 1987.

CANADIAN INTERNATIONAL TRADE CLASSIFICATION

751      POWER DRIVEN HAND TOOLS (exclude portable masonry saw machines (5229934),  
portable bench saws (5242875)  
portable rail saws (52391))

		Imperial measure		Tariff items commonly applied	Metric measure	
		<u>Unit</u>	<u>Code</u>		<u>Unit</u>	<u>Code</u>
<u>Power driven hand drills and tappers</u>						
751 02 30	Drills, electric, hand held	NO	10	4270001	NO	10
751 02 50	Tappers, electric, hand held	NO	10	4270001	NO	10
<u>Power driven hand wrenches</u>						
751 16 30	Wrenches, electric, hand held	NO	10	4270001	NO	10
<u>Power driven hand saws</u>						
751 22 30	Saws, reciprocating, electric, hand held	NO	10	4270001	NO	10
751 22 35	Saws, circular, electric, hand held	NO	10	4270001	NO	10
<u>Power driven hand tools NES</u>						
751 90 27	Nailers, air, hand held	NO	10	4270001	NO	10
751 90 50	Sanders, electric, hand held	NO	10	4270001	NO	10
751 90 70	Routers, electric, hand held	NO	10	4270001	NO	10
751 90 80	Tool, electric, lawn & garden, hand held	NO	10	4270001	NO	10
751 90 89	Tool, electric NES, hand held	NO	10	4270001	NO	10
<u>Parts of power driven hand tools</u>						
751 98 30	Power handles, electric, exc lawn mower units	NO	10	4270001	NO	10
751 98 50	Power driven hand tool parts	-		4270001	-	
751 98 90	Power driven hand tool access & attach. NES	-		4270001	-	

SOURCE:

CANADIAN TARIFFSONPOWER HAND TOOLS

<u>Tariff Number</u>	<u>In force:</u>	<u>British preferential tariff</u>	<u>Tariff of the most favorite nation</u>	<u>General tariff</u>
42700-1	January 1/81	2.5 p.c.	13.6 p.c.	35 p.c.
	January 1/82	2.5 p.c.	12.8 p.c.	35 p.c.
	January 1/83	2.5 p.c.	12.1 p.c.	35 p.c.
	January 1/84	2.5 p.c.	11.4 p.c.	35 p.c.
	January 1/85	2.5 p.c.	10.7 p.c.	35 p.c.
	January 1/86	2.5 p.c.	9.9 p.c.	35 p.c.
	January 1/87	2.5 p.c.	9.2 p.c.	35 p.c.
<u>Prior to</u>	January/81	2.5 p.c.	15.0 p.c.	35 p.c.

SOURCE: Department of Finance - Canada



U.S. TARIFF SCHEDULES  
OF POWER DRIVEN HAND TOOLS

1978

<u>Article</u>	<u>Quantity</u>	<u>Rates of Duty</u>	
		<u>Favored Countries</u>	<u>Communist Countries</u>
Hand-directed or controlled tools with self contained electric motor and parts thereof:			
(drills, saws)	.....	5.5% ad val.	35% ad val.
<u>Tools:</u>	No.	5.5% ad val.	35% ad val.
<u>Parts:</u>	*	5.5% ad val.	35% ad val.
Hand-directed or controlled tools with pneumatic or self-contained non-electric motor & parts thereof:			
<u>Tools suitable for metal working &amp; parts thereof</u>	*	7.5% ad val.	30% ad val.
<u>Other:</u>	.....	4.5% ad val.	27.5% ad val.
Powder-actuated hand tools parts thereof:	*	4.5% ad val.	27.5% ad val.

\* No quantity (other than gross weight) is to be reported

SOURCE: U.S. International Trade Commission

TARIFF TRENDS ON IMPORTS TO THE U.S. OF POWER DRIVEN HAND TOOLS

	<u>1978</u>	<u>1976</u>	<u>1972</u>	<u>1971</u>	<u>1970</u>	<u>1969</u>	<u>1968</u>	<u>Prior to 1968</u>
Hand-directed or controlled tools with self-contained electric motor & parts thereof (drills, saws):								
<u>Tools:</u> )								
) ad val. 5.5%	5.5%	5.5%	5.5%	7.0%	8.0%	9.0%	10.5%	11.75%
<u>Parts:</u> )								
Hand-directed or controlled tools with pneumatic or self-contained non-electric motor, & parts thereof:								
Tools suitable for metal working and parts thereof:-----	ad val. 7.5	7.5	7.5	9.0	10.0	12.0	13.0	15.0
<u>Other:</u> ad val. 4.5	4.5	4.5	4.5	5.0	6.0	7.0	8.0	9.0
Power-actuated hand tools & parts thereof:           ad val. 4.5	4.5	4.5	4.5	5.0	6.0	7.0	8.0	9.0

SOURCE: U.S. International Trade Commission

POWER TOOL INDUSTRY

CANADA

UNITED STATES

JAPAN

CANADA

I M P O R T SBY COMMODITIES AND COUNTRIESC.I.T.C. DETAIL

	1978		1979	
	Quantity Imperial	Value \$,000	Quantity Imperial	Value \$,000
<u>75102</u> POWER DRIVEN HAND DRILLS & TAPPERS -----	<u>202,376</u>	<u>8,388</u>	<u>162,289</u>	<u>7,548</u>
-20 DRILLS/ air, hand held:				
United Kingdom	1,812	192	6,050	238
Germany West	2,173	161	x	x
Japan	2,014	82	3,058	110
United States	24,014	1,138	32,739	1,562
C.I.T.C. Total	30,430	1,745	43,081	2,103
-30 DRILLS/ electric, hand held				
United Kingdom	6,742	519	5,465	409
Germany West	6,753	516	6,961	594
Switzerland	4,716	273	x	x
Japan	14,783	897	14,264	858
Taiwan	1,282	95	1,855	174
United States	118,390	3,651	61,203	2,827
C.I.T.C. Total	157,622	6,068	93,768	5,180
-40 TAPPERS/ air, hand held				
Germany West	2,321	144	x	x
United States	7,746	163	22,828	65
C.I.T.C. Total	13,319	524	24,621	224
-50 TAPPERS/ electric, hand held				
United States	979	46	136	12
C.I.T.C. Total	1,005	51	819	41

	1978		1979	
	<u>Quantity</u> <u>Imperial</u>	<u>Value</u> <u>\$,000</u>	<u>Quantity</u> <u>Imperial</u>	<u>Value</u> <u>\$,000</u>
<u>75116</u> <u>POWER DRIVEN HAND WRENCHES</u>	<u>101,342</u>	<u>7,645</u>	<u>74,227</u>	<u>5,964</u>
-20 WRENCHES/ impact & torque air, hand held:				
United Kingdom	29,875	1,397	16,593	1,099
Japan	9,408	533	11,661	577
United States	26,403	2,812	24,865	3,020
C.I.T.C. Total	65,869	4,769	53,269	4,724
-30 WRENCHES/ electric, hand held:				
Germany West	x		52	19
Japan	616	51	294	27
United States	16,352	1,980	5,235	563
C.I.T.C. Total	17,327	2,077	5,641	620
-40 WRENCHES/ tatchet, air, hand held:				
Japan	11,287	406	13,721	434
United States				
C.I.T.C. Total	18,146	799	15,317	620
<u>75122</u> <u>POWER DRIVEN HAND SAWS</u>	<u>234,021</u>	<u>7,988</u>	<u>169,816</u>	<u>6,486</u>
-20 SAWS/ air, hand held:				
United States	16,504	524	11,801	421
C.I.T.C. Total	17,037	595	13,781	720
-30 SAWS/ reciprocating, electric, hand held:				
Germany West	301	30	1,277	111
Japan	x	x	2,800	274
Taiwan	--	--	308	32
United States	61,784	2,325	38,775	1,332
C.I.T.C.	64,535	2,602	44,497	1,901
-35 SAWS/ circular, electric hand held:				
United Kingdom	103	7	99	14
Germany West	687	68	1,659	111
Italy	--	--	497	42
Switzerland	408	22	x	x
Japan	3,679	312	4,270	420
United States	147,562	4,381	104,979	3,275
C.I.T.C. Total	152,449	4,791	111,538	3,865

	1978		1979	
	<u>Quantity</u> <u>Imperial</u>	<u>Value</u> <u>\$,000</u>	<u>Quantity</u> <u>Imperial</u>	<u>Value</u> <u>\$,000</u>
<u>75190</u> <u>POWER DRIVEN HAND TOOLS NES</u>	<u>1,012,905</u>	<u>42,705</u>	<u>801,964</u>	<u>43,810</u>
-11 TOOL/ gas driven hand held:				
Japan	708	78	x	x
United States	8,360	1,358	18,279	2,117
C.I.T.C. Total	9,129	1,448	21,507	2,446
-21 HAMMERS/ riveting, air hand held:				
United Kingdom	45	5	872	21
Belgium-Luxem.	--	--	11	3
Germany West	726	122	774	119
Italy	--	--	36	5
Japan	309	11	108	13
United States	1,341	213	6,464	590
C.I.T.C. Total	4,129	560	12,803	779
-23 HAMMERS/ chipping, air: hand held:				
United Kingdom	309	101	259	99
Japan	335	24	177	30
United States	545	102	1,599	221
C.I.T.C. Total	1,238	236	2,551	498
-25 PUNCHES/ air, hand held:				
United States	757	17	467	20
C.I.T.C. Total	773	18	1,010	33
-27 NAILERS/ air hand held:				
Germany West	606	167	20	6
Switzerland	56	30	x	x
United States	3,441	668	3,367	741
C.I.T.C. Total	4,341	940	3,616	823
-29 TOOL/ air, reciprocating hand held:				
United Kingdom	109	25	101	24
Germany West	41	8	x	x
Japan	2,147	124	1,527	117
United States	1,737	168	5,928	476
C.I.T.C. Total	4,158	376	7,772	644

	1978		1979	
	<u>Quantity</u> <u>Imperial</u>	<u>Value</u> <u>\$,000</u>	<u>Quantity</u> <u>Imperial</u>	<u>Value</u> <u>\$,000</u>
<u>75190</u>				
-41	SCREWDRIVERS/ air, hand held:			
	United Kingdom	x x	730	56
	Germany West	x x	319	42
	Japan	479 43	2,440	171
	United States	3,561 534	5,945	799
	C.I.T.C. Total	8,030 825	9,564	1,089
-42	RUNNERS NUT/ air, hand held:			
	United Kingdom	560 147	93	24
	United States	889 316	1,858	496
	C.I.T.C. Total	1,505 484	3,540	986
-43	SETTERS NUT/ air, hand held:			
	United States	1,039 418	1,741	853
-50	SANDERS/ electric, hand held:			
	United Kingdom	1,678 107	x	x
	Germany West	384 44	1,276	89
	Switzerland	262 18	x	x
	Japan	2,035 142	9,781	574
	United States	75,696 2,962	62,596	2,607
	C.I.T.C. Total	80,111 3,275	75,519	3,465
-60	GRINDERS, SANDERS & POLISHERS/ air, hand held:			
	United Kingdom	1,298 104	2,124	196
	Germany West	4,051 404	6,753	490
	Japan	16,408 816	20,470	1,024
	Taiwan	400 11	x	x
	United States	52,124 2,713	44,345	2,754
	C.I.T.C. Total	52,124 2,713	44,345	2,754
-69	TOOL/ air NES, hand held:			
	United Kingdom	2,892 356	7,604	585
	Germany West	985 143	186	51
	Switzerland	84 15	x	x
	Japan	3,326 153	1,762	137
	United States	10,956 1,136	15,457	1,418
	C.I.T.C. Total	20,457 2,245	28,843	3,135



		1978		1979	
		Quantity	Value	Quantity	Value
		<u>Imperial</u>	<u>\$,000</u>	<u>Imperial</u>	<u>\$,000</u>
<u>75190</u>					
-70	ROUTERS/ electric, hand held:				
	Japan	850	74	x	x
	United States	159,501	5,471	131,414	4,847
	C.I.T.C. Total	160,335	5,558	132,974	4,975
-8-	TOOL/ electric, lawn & garden, hand held:				
	United States	322,926	7,244	165,421	4,767
	C.I.T.C. Total	323,080	7,264	165,649	4,802
-89	TOOL/ electric NES, hand held:				
	United Kingdom	3,483	349	6,184	694
	Germany West	11,523	911	18,424	1,498
	Italy	x	x	681	70
	Netherlands	x	x	208	13
	Sweden	120	31	--	--
	Switzerland	11,481	1,379	4,358	1,031
	Japan	49,897	3,204	23,909	1,747
	Taiwan	672	46	2,119	89
	United States	225,516	8,821	197,481	9,350
	C.I.T.C. Total	315,029	14,829	255,251	14,510
<u>75198</u>	<u>PARTS OF POWER DRIVEN HAND TOOLS</u>	<u>----</u>	<u>38,137</u>	<u>----</u>	<u>54,588</u>
-20	TOOLHEADS/ gasoline (power pland):				
	United States	754	99	618	83
	C.I.T.C. Total	754	99	618	83
-30	POWER HANDLES/electric, exc. lawn mower units:				
	United States	310	10	15,916	55
	C.I.T.C. Total	360	15	23,724	190

	1978		1979	
	Quantity	Value	Quantity	Value
	<u>Imperial</u>	<u>\$,000</u>	<u>Imperial</u>	<u>\$,000</u>
<u>75198</u>				
-50	POWER DRIVEN HAND TOOL/ <u>PARTS:</u>			
	United Kingdom	-- 819	--	960
	Finland	-- 75	--	x
	Germany West	-- 1,147	--	1,756
	Italy	-- 7	--	51
	Netherlands	-- 66	--	424
	Sweden	-- 399	--	572
	Switzerland	-- 438	--	1,025
	Japan	-- 556	--	926
	Taiwan	-- 5	--	36
	Australia	-- x	--	38
	United States	-- 27,556	--	34,236
	C.I.T.C. Total	31,152	--	39,861
-90	POWER DRIVEN HAND TOOL/ ACCESS. & ATTACH. NES:			
	United Kingdom	-- 403	--	289
	Germany West	-- 283	--	555
	Netherlands	-- x	--	58
	Sweden	-- x	--	77
	Switzerland	-- 97	--	140
	Japan	-- 229	--	337
	Taiwan	-- 98	--	102
	United States	-- 5,695	--	12,794
	C.I.T.C. Total	-- 6,861	--	14,454
52428	SAWING MACHINE/ woodworking, radial art type:			
	United Kingdom	9 11	x	x
	United States	7,256 1,870	21,129	3,949
	C.I.T.C. Total	7,288 1,895	21,143	3,980

SOURCE: Statistics Canada

CANADA - POWER TOOL BRAND PREFERENCE

OTHER  
POWER TOOLS

REPORT BY DEALERS

	<u>1975 Survey</u>	<u>1979 Survey</u>						
		<u>EAST</u>			<u>WEST</u>			
		<u>TOTAL</u>	<u>TOTAL</u>	<u>Total</u>	<u>Chain</u>	<u>Indep- endent</u>	<u>Total</u>	<u>Chain</u>
BASE (100%) Number of respondents	641	665	439	41	398	226	57	169
Percent selling - Other power tools	61.5%	58.0%	53.3%	70.7%	51.5%	67.3%	80.7%	62.7
Number of respondents stating best-selling brands	242	273	161	19	142	112	39	73
<u>Brand stated:</u>								
Black & Decker	68.6%	65.9%	64.0%	78.9%	62.0%	68.8%	74.4%	65.8%
Skil	20.2	22.0	21.1	21.1	21.1	23.2	12.8	28.8
Rockwell	10.3	10.6	9.9	5.3	10.6	11.6	15.4	9.6
Makita	-	4.4	4.3	-	4.9	4.5	-	6.8
McGraw-Edison (Shopmate)	4.6	1.8	1.9	-	2.1	1.8	5.1	-
Wen	-	1.8	0.6	-	0.7	3.6	7.7	1.4
Holz-Her	-	1.5	2.5	-	2.8	-	-	-
Beaver	2.1	1.1	1.2	5.3	0.7	0.9	-	1.4
Milwaukee	0.4	0.7	0.6	-	0.7	0.9	-	1.4
Stanley	2.5	0.4	-	-	-	0.9	-	1.4
Bosch	-	0.4	0.6	-	0.7	-	-	-
Others	3.7	-	-	-	-	-	-	-

Percentages add to more than 100% due to multiple mentions.

SOURCE: McLean Hunter -  
Canadian Survey of Building Materials Retailing, 1979

CANADA - ELECTRIC DRILLS BRAND PREFERENCE

ELECTRIC  
DRILLS

REPORT BY DEALERS

	1975 Survey	1979 Survey						
		EAST			WEST			
		TOTAL	TOTAL	Total	Chain	Indep- endent	Total	Chain
BASE (100%) Number of respondents	641	665	439	41	398	226	57	169
Percent selling - Electric drills	73.8%	71.1%	65.6%	80.5%	64.1%	81.9%	98.2%	76.3%
Number of respondents stating best-selling brands	325	356	209	23	186	147	47	100.0
<u>Brand stated:</u>								
Black & Decker	73.2%	75.6%	73.2%	100.0%	69.9%	78.9%	89.4%	74.0%
Skil	21.5	22.5	22.0	4.3	24.2	23.1	6.4	31.0
Rockwell	4.3	4.2	4.3	-	4.8	4.1	6.4	3.0
Makita	-	2.5	3.3	-	3.8	1.4	-	2.0
McGraw-Edison (Shopmate)	3.4	1.4	1.0	-	1.1	2.0	6.4	-
Stanley	1.5	0.8	1.0	-	1.1	0.7	-	1.0
Milwaukee	0.9	0.3	-	-	-	0.7	-	1.0
Wen	-	0.3	0.5	-	0.5	-	-	-
Millers Falls	-	0.3	0.5	-	0.5	-	-	-
Howden	-	0.3	0.5	-	0.5	-	-	-

Percentages add to more than 100% due to multiple mentions.

SOURCE: McLean Hunter

Canadian Survey of Building Materials Retailing, 1979

CANADA - ELECTRIC SAWS BRAND PREFERENCE

ELECTRIC  
SAWS

REPORT BY DEALERS

	1975 Survey		1979 Survey					
	<u>TOTAL</u>	<u>TOTAL</u>	<u>EAST</u>			<u>WEST</u>		
			<u>Total</u>	<u>Chain</u>	<u>Indep- endent</u>	<u>Total</u>	<u>Chain</u>	<u>Indep- endent</u>
BASE (100%) Number of respondents	641	665	439	41	398	226	57	169
Percent selling - Electric saws	72.1%	68.0%	62.2%	68.3%	61.6%	79.2%	98.2%	72.8%
Number of respondents stating best-selling brands	320	340	198	20	178	142	47	95
<u>Brand stated:</u>								
Black & Decker	69.1%	66.5%	67.7%	90.0%	65.2%	64.8%	74.5%	60.0%
Skil	28.4	30.3	27.8	15.0	29.2	33.8	12.8	44.2
Rockwell	4.4	5.0	4.0	-	4.5	6.3	10.6	4.2
Remington	0.9	1.8	2.5	-	2.8	0.7	-	1.1
Makita	-	1.5	1.5	-	1.7	1.4	-	2.1
McGraw-Edison (Shopmate)	2.9	1.2	0.5	-	0.6	2.1	6.4	-
Stanley	1.3	0.9	1.0	-	1.1	0.7	-	1.1
Wen	-	0.9	-	-	-	2.1	6.4	-
Holz-Her	-	0.6	1.0	-	1.1	-	-	-
Milwaukee	0.6	0.3	-	-	-	0.7	-	1.1
Howden	-	0.3	0.5	-	0.6	-	-	-
Sutton	-	0.3	0.5	-	0.6	-	-	-
"various"	0.3	-	-	-	-	-	-	-

Percentages add to more than 100% due to multiple mentions.

SOURCE: McLean Hunter

Canadian Survey of Building Materials Retailing, 1979

CANADA - ELECTRIC SANDERS BRAND PREFERENCE

ELECTRIC  
SANDERS

REPORT BY DEALERS

	<u>1975 Survey</u>	<u>1979 Survey</u>						
		<u>EAST</u>					<u>WEST</u>	
		<u>TOTAL</u>	<u>TOTAL</u>	<u>Total</u>	<u>Chain</u>	<u>Indep- endent</u>	<u>Total</u>	<u>Chain</u>
BASE (100%) Number of respondents	641	665	439	41	398	226	57	169
Percent selling - Electric sanders	67.2%	69.5%	64.0%	78.0%	62.6%	80.1%	98.2%	74.0%
Number of respondents stating best-selling brands	286	347	202	22	180	145	47	98
<u>Brand stated:</u>								
Black & Decker	74.1%	77.5%	75.7%	100.0%	72.8%	80.0%	91.5%	74.5%
Skil	21.7	20.7	20.3	4.5	22.0	21.4	6.4	28.6
Rockwell	4.2	3.7	3.5	-	3.9	4.1	4.3	4.1
McGraw-Edison	4.2	1.4	1.0	-	1.1	2.1	6.4	-
Makita	-	1.4	1.5	-	1.7	1.4	-	2.0
Holz-Her	-	0.9	1.5	-	1.7	-	-	-
Stanley	1.4	0.6	0.5	-	0.6	0.7	-	1.0
Others	0.7	0.6	1.0	-	1.1	-	-	-

Percentages add to more than 100% due to multiple mentions.

SOURCE: McLean Hunter  
Canadian Survey of Building Materials Retailing, 1979

MARKET PROJECTIONS BY CATEGORIES

<u>Portable Power Tool Category</u> -----	<u>Average Growth 1975-1980</u> -----	<u>Average Growth 1980-1985</u> -----
Electrical	10%	9%
Pneumatic	7%	7%
Powder Actuated	10%	10%
Gasoline Driven	9%	8%
Hydraulic Powered	10%	10%

SOURCE: Consumer products / professional / lawn & garden  
Volume Retail Merchandising May, 1977

PERCENTAGE SHARE OF RETAIL SALESBY VARIOUS STORE GROUPS, 1974

(\$000's)

All Hardware Items:	Hardware Stores	Depart'l Stores	General Merchand. Stores	General Stores	Variety Stores
<u>Total Sales</u>	551,361	5,607,715	1,595,667	178,993	583,927
Power Tools	3.3%	0.6%	1.5%	0.4%	*

All Hardware Items:	Combinat. Stores	Home & Auto Supply Stores	Paint, Glass and Wallpaper Stores	Household Appliance Stores
<u>Total Sales</u>	10,142,109	841,278	113,686	103,648
Power Tools	-	2.0%	0.1%	0.5%

All Hardware Items:	Sporting Goods and Accessories Stores	Lamp and Lighting Fixtures Stores
<u>Total Sales</u>	548,842	18,273
Power Tools	Part of 0.2%	-

SOURCE: The Canadian Hardware Market  
Survey prepared by Maclean Hunter



POWER TOOLS  
ESTIMATED SALES, BY PROVINCE

1974

(\$000's)

<u>CANADA</u>	<u>Nfld.</u>	<u>P.E.I.</u>	<u>N.Scotia</u>	<u>N.Brunswick</u>
94,228	1,586	638	3,529	3,053
	<u>Quebec</u>	<u>Ontario</u>	<u>Manitoba</u>	<u>Sask.</u>
	22,731	34,304	3,772	4,636
	<u>Alberta</u>	<u>B.Columbia</u>	<u>Yukon &amp; N.W.T.</u>	
	8,344	11,503	127	

SOURCE: The Canadian Hardware Market  
Survey prepared by Maclean Hunter

POWER TOOLS

AVERAGE EXPENDITURE PER HOUSEHOLD           1972: \$ 5.00  
FOR HOME WORKSHOP                               1974: \$ 8.20

CANADIAN PRODUCTION (\$000's):

In most cases, the following data represents the total value of shipments or production. Many of these products are produced in more than one Standard Industrial Classification, but Statistics Canada gathers the information from the various S.I.C.'s to produce an 'all industry' shipment figures. Many of the 1974 industry reports were not released by Statistics Canada at press time, thus much of the data for that year is not reported.

	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>
Power-driven hand tools (incl.hobby & home workshop)	20,616	27,369	24,604	28,278
Power chain saws	14,604	18,081	21,323	34,739
Parts for power chain saws	12,745	15,680	18,181	24,644
<u>IMPORTS (\$000's)</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	
Chain saws	8,671	8,613	10,918	
Parts & accessories for chain saws	10,869	17,176	15,384	
Power driven hand drills & tappers	4,583	4,182	5,100	
Power driven hand wrenches	3,717	4,079	5,065	
Power driven hand saws	4,551	4,688	3,931	
Power driven hand tools, n.e.s.	16,106	23,749	22,652	
Parts for power driven hand tools	<u>20,782</u>	<u>25,935</u>	<u>27,073</u>	
TOTAL	69,279	88,422	90,123	
<u>EXPORTS (\$000's)</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	
Chain saws	9,776	18,502	23,381	
Parts and access. for chain saws	16,680	22,147	29,458	
Power driven hand tools and parts	<u>8,198</u>	<u>10,576</u>	<u>13,362</u>	
TOTAL	34,654	51,225	66,201	

SOURCE: The Canadian Hardware Market  
A survey prepared by Maclean-Hunter

POWER TOOLS

	<u>1971</u> <u>Survey</u>	<u>1973</u> <u>Survey</u>
BASE (100%) Number of respondents	350	413
Percent selling - power tools	63.7%	67.3%
Number of respondents stating best-selling brands	170	227
<u>Brand stated:</u>		
Black & Decker	50.5%	47.6%
Skill	19.4	26.9
Stanley	6.5	8.4
Portable electric tools (Shopcraft, Shopmate)	9.4	8.4
Rockwell	8.2	5.7
Miller Falls	1.8	1.3
Others	4.7	1.8

MARKET PROJECTIONS BY CATEGORIES

<u>Portable Power Tool</u> <u>Category</u> -----	<u>Average Growth</u> <u>1975-1980</u> -----	<u>Average Growth</u> <u>1980-1985</u> -----
Electrical	10%	9%
Pneumatic	7%	7%
Powder Actuated	10%	10%
Gasoline Driven	9%	8%
Hydraulic Powered	10%	10%

SOURCE: Consumer products / professional / lawn & garden  
Volume Retail Merchandising May, 1977

CANADIAN MANUFACTURERS  
OF  
POWER DRIVEN HAND TOOLS

QUEBEC

AIRTEK LTD, Montreal  
J.R. BOISVERT & CIE (1975) LTEE, Grandes-Piles  
AURELE DUBE MACHINE SHOP, Montreal  
DURAND MANUFACTURING INC., Montreal  
HOMELITE TERRY, Montreal  
INTERDUSTRIES INC., Victoriaville  
LES PRODUITS DIAMANTAIRES ASTRA LTEE, Montreal  
STANLEY WORKS LTD., Roxton Pond  
SWECAN SAW CO. LTD., Montreal  
TEXTRON CANADA LTEE, HOMELITE-TERRY DIVISION, Montreal  
EQUIFAB INC. Boucherville  
COGAN WIRE & METAL PRODUCT, Montreal

(cont'd)

CANADIAN MANUFACTURERS

(cont'd)

BRITISH COLUMBIA

WINDSOR MACHINE CO. LTD.  
TRAIL MANUFACTURING LIMITED  
HUDSON INDUSTRIES LTD.

ONTARIO

BLACK AND DECKER MFG. CO. LTD  
ROCKWELL INTERNATIONAL CANADA  
FORD SMITH MACHINE COMPANY LTD.  
ROCKWELL INTERNATIONAL CANADA  
STANLEY WORKS LTD.  
EMERSON ELECTRIC CANADA LTD.  
EVANS ROBERT CO. OF CDA. LTD.  
GILSON BROTHERS COMPANY CAN.  
OUTBOARD MARINE CORP. CANADA  
PIONEER CHAIN SAW CORP. INC.  
SKIL CANADA LIMITED

SOURCE: Guide to Canadian Manufacturers, 1979  
Dun & Bradstreet Canada Limited  
Scott's Quebec Industrial Directory, 1979  
Penstock Directories, Ed.

Quebec

AIRTEK LTD

5750, rue Donahue  
St-Laurent, H4S 1C1  
Tel. (514) 336-3820

Executives: Vice-Pres. David S. Edelberg  
Products: Air compressors, air tools, pneumatic  
accessories, carbide burrs & cutting  
tools, screw driver bits, etc.  
hose, spray equipment, chain blocks,  
air filtration equipment, blind  
rivets & riveters, abrasive, etc.  
Employees: Plant 4 Office 4

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J.R. BOISVERT & CIE (1975) LTEE,

Grandes-Piles  
Comté Champlain, G0X 1H0  
Tel. (819) 538-2117

Executives: Pres. & Exec. Dir. Guy Couture  
Products: Cutting & logging tools  
Employees: Plant 4 Office 2

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AURELE DUBE MACHINE SHOP

7625, 18e Ave.  
Montreal H2A 2N5  
Tel. (514) 721-5533

Executives: Prop. A. Dubé  
Products: Concrete drills  
Employees: Plant 4

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(cont'd)

(Quebec)

82.

LES PRODUITS DIAMANTAIRES  
ASTRA LTEE-----

3045, rue Halpern  
St-Laurent, H4S 1P5  
Tel. (514) 331-1893

Executives: Pres. D. Errey  
Products: Saws & drills for cutting concrete  
Employees: Plant 4 Office 1

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STANLEY WORKS LIMITED

Box 60  
Roxton Pond, JOE 1Z0  
Tel. (514) 372-6686

Executives: Pres. R. Weir (Hamilton, Ont.)  
Vice-Pres./Mfg. B. Corriveau  
Vice-Pres./Marketing R.B. Korody (Hamilton)  
Vice-Pres./Sales F. Jones (Hamilton)  
Products: Hand tools, drapery hardware, power tools  
Employees: Plant 228 Office 43  
Head Office: P.O. Box 3001, Station B  
Hamilton, Ont. L8L 7X9  
Corporation The Stanley Works  
Head Office: New Britain, Conn. U.S.A.

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SWECAN SAW CO. LTD

6275 boul. des Grandes Prairies  
St-Léonard, H1P 1A5  
Tel. (514) 322-7220

Executives: Pres. & Gen. Mgr. G. Pinat  
Vice-Pres. Y. Lelay  
Products: Saws, tools, grinders  
Employees Plant 9 Office 1  
Parent Company: Swecan International  
Lanoraie, Que.

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(cont'd)



(Quebec)

DURAND MANUFACTURING INC.

R.R. 5  
 Ste-Rose, H7L 1K5  
 Tel. (514) 622-3440

Executives: Pres. & Gen. Mgr. Marcel Durant  
 Vice-Pres. Jacques Cyr  
 Products: Tools & replacement parts for chain  
 saws, snowmobiles & motorcycles  
 Employees: Plant 16 Office 4

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HOMELITE TERRY

180, av. Labrosse  
 Pointe-Claire, H9R 1A2  
 Tel. (514) 697-5910

Executives: Pres. J. Grifillian  
 Vice-Pres. R. Dood  
 Products: Chain saws  
 Employees: Plant 275

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INTERDUSTRIES INC.

22, boul. de l'Artisan  
 Victoriaville, G6P 7E4  
 Tel. (819) 758-0571

Executives: Pres. Rosaire Fournier  
 Vice-Pres. Henri Fournier  
 Exec. Dir. & Acc. Marcel Bédard  
 Plant Mgr. J.-G. deMontigny  
 Products: Carbide drill bits & carbide snow  
 plow blades  
 Employees: Plant 12 Office 3

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(cont'd)

(Quebec)

84.

TEXTRON CANADA LIMITED  
HOMELITE-TERRY DIVISION

Box 1800  
Pointe-Claire, H9R 4R6  
Tel. (514) 697-5910

Executives: Pres. J.A. Gilfillan  
Vice-Pres. Mktg. R.H. Dood  
Dir. of Mfg. F. Feith

Products: Chain saws, pumps, generators, garden  
equipment, electric chain saw, string  
trimmer

Employees: Plant 472 Office 73

Head Office: 19 Rangemore Road  
Toronto, Ont. M8Z 5H9

Parent Company: Textron Inc.  
Providence, Rhode Island, U.S.A.

Square feet: Plant 90,000 Office 10,000

Materials purchased: CARBON STEEL: sheets, rods, bars, strips,  
coils, tubing, pipes, wires, extrusions,  
fittings, fasteners; ALUMINUM CASTINGS,  
sheets, rods, bars, strips, coils, tubing,  
pipes, extrusions, fittings, fasteners

Major capital machinery: Presses, trim presses (hyd. trim presses)  
punch press, high-speed punch presses,  
stamping presses, milling machinery, hori-  
zontal & vertical milling machinery,  
vertical boring mills; welding machinery,  
spot welder, semi-automatic MIG, manual  
TIG, riveting equipment, stick welder,  
engine lathes, polishing lathes, machine  
lathes, grinding lathes grinding equipment,  
rotary grinders, internal grinders, hori-  
zontal & optical grinders, centreless  
grinders, surface grinders, flat, cylindri-  
cal, internal & external grinders, sanders,  
buffer, saws & cutting equipment, horizontal  
& band saw, cut-off saws, circular saws,  
bending brakes, air drills, casting, molding  
bending machines, die-casting machines,  
die-casting machines, pipe benders

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(Quebec)

EQUIFAB INC.

20 boul. de Mortagne  
Boucherville, Que. J4B 5E7  
Tel. (514) 527-7171

Executives: Gen. Mgr. G. Constantineau  
Prop. A. Gosselin

Employees: Plant 15 Office 6

Square feet: Plant 15,000 Office 2,500

Products: Major: conveyors, buckets & bins, portable chassis for mining equipment, stationary base & stick for hydraulic rock breakers

Materials purchased: CARBON STEEL: plates, slabs, sheets, IRON plates, slabs, structural shapes

Major capital equipment: Trim presses (hyd. trim presses), punching machines, horizontal & vertical milling machinery, welding machinery, semi-automatic MIG, manual TIG, lathes, hand grinders, horizontal & band saw, automatic torch-cutting machine, painting equipment, dust collecting units, fork lifts, air compressors, overhead cranes, roller conveyors

COGAN WIRE & METAL PRODUCT

8251 E Boul Metropolitan  
Montreal, Que. H1J 1K1  
Tel. (514) 354-1171

Executives: Gen. Mgr. N. Goddard  
Plant Mgr. G. Champagne  
Product. Mgr. G. Champagne

Employees: Plant 30 Office 7

Square feet: Plant 32,000 Office 1,000

Products: Major: wire mesh enclosures, construction form hardware, wire shelving, wire carts, woven wire mesh

Materials purchased: CARBON STEEL WIRES; STAINLESS WIRES; ALUMINUM WIRES

Major capital machinery: Punch press, stamping presses, wire punch presses, press brakes, welding machinery, spot welders, saws & cutting equipment, wire cutters & strippers, wire straightening machinery, air compressors

British Columbia

WINDSOR MACHINE CO. LTD.

2965 Lake City  
Burnaby, BC V5A 2Z9  
Tel. (604) 299-0211

Executives: Gen. Mgr. C. Pulham  
Plant Mgr. B. Hodges  
Product. Mgr. N. Crane

Employees: Plant 285 Office 75

Square feet: Plant 85,000 Office 6,0000

Products: Major: saw chain, guide bars, sprockets,  
accessories

Materials purchased: CARBON STEEL: rods, bars, strips, coils;  
ALLOY & TOOL STEEL: plates, slabs, rods,  
bars; STAINLESS TUBING: pipes; COPPER:  
plates, slabs, rods, bars, strips, coils;  
BRONZE-BRASS RODS: bars

Major capital machinery: presses, punch press, high-speed punch  
presses, stamping presses, hydraulic  
presses, milling machinery, horizontal  
& vertical milling machinery, vertical  
boring mills, welding machinery, spot  
welders, manual TIG, riveting equipment,  
lathes, rotary grinders, internal grin-  
ders, external grinders, hand grinders,  
surface grinders, furnaces, curing ovens,  
electric melting furnaces, heat treat-  
ment furnace, sanders, saws & cutting  
equipment, horizontal & band saw, pipe  
benders, cold-forming equipment, paint-  
ing equipment, automatic paint line,  
wire straightening machinery, coil winders,  
dust collecting units, fork lifts, air  
compressors, conveyors, machine lathes

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TRAIL MANUFACTURING LIMITEDS S # 1 Waneta Road  
Trail, BC V1R 4L7  
Tel. (604) 367-7523

Executives: Gen. Mgr. C. Bristoll  
Plant Mgr. G. Isberg  
Product. Mgr. B. Wales

Employees: Plant 29 Office 8

Square feet: Plant 33,000 Office 3,000

(con'td)

(British Columbia)

Products: Major: casual use chain saw, industrial engines, hobby craft engine

Materials purchased: CARBON STEEL FITTINGS: fasteners; ALLOY & TOOL STEEL EXTRUSIONS; BRASS-BRONZE SHEETS: strips, cods; ALUMINUM CASTINGS; MAGNESIUM CASTINGS

Major capital machinery: Presses, punch press, stamping presses, milling machinery, horizontal & vertical milling machinery, welding machinery; lathes, grinding equipment, furnaces, heat treatment furnace, sanders, saws & cutting equipment, horizontal & band saw, painting equipment, fork lifts, air compressors, air hoist

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HUDSON INDUSTRIES LTD

2965 Lake City Way  
 Vancouver, BC V5A 2Z9  
 Tel. (604) 299-0211

Executives: Pres. E.N. Hudson

Products: Chain saw parts

Employees: 2

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Ontario

BLACK AND DECKER MFG.CO.LTD.

100 Central Ave.  
Brockville, ON K6V 4N8  
Tel. (613) 342-6641

Executives: Gen. Mgr. R. Tivy  
Plant Mgr. A. Chelico  
Product. Mgr. P. Sheldon

Employees: Plant 785 Office 159

Square feet: Plant 213,141 Office 114,387

Products: Major: power tools, workmate bench

Materials purchased: CARBON STEEL: sheets, rods, bars, strips, coils, tubing, pipes, wires, extrusion, fittings, fasteners; ALLOY & TOOL STEEL: sheets, rods, bars, strips, coils, tubing, pipes, wires, fittings, fasteners; STAINLESS: sheets, rods, bars, strips, coils, tubing, pipes, wires, fittings, fasteners; BRONZE-BRASS: castings, plates, slabs, sheets, rods, bars, strips, coils, tubing, pipes, wires, fittings, fasteners; ALUMINUM: castings, sheets, rods, bars, strips, coils, tubing, pipes, wires, extrusions, fittings, fasteners; IRON: castings, plates, slabs, sheets, rods, bars, strips, coils, tubing, pipes, wires, fittings, fasteners; LEAD: castings, rods, bars; ZINC: castings, rods, bars

Major capital machinery: Presses, punch press, hydraulic presses, milling machinery, horizontal & vertical milling machinery, welding machinery, spot welders, soldering equipment, riveting equipment, engine lathes, internal grinders, external grinders, cylindrical, horizontal & optical grinders, hand grinders, grinding equipment, surface grinders, cuning overs, heat treatment furnace, sanders, saws & cutting equipment, horizontal & band saw, casting, molding bending machines, injection moulding machinery, pipe benders, automatic paint line, spray painting booths, wire straightening machinery, thread-rolling equipment, decoilers, pollution control equipment, dust collecting units, electronic test equipment, fork lifts, air compressors, overhead cranes, conveyors, roller conveyors, air hoist

(Ontario)

ROCKWELL INTERNATIONAL CANADA      Crimea St  
Downsview, ON M3M 3B9  
Tel. (416) 822-2840

Executives:      Pres. David Pass  
Employees:      336  
Products:      Electrical Valves

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ROCKWELL INTERNATIONAL CANADA      40 Wellington St W  
Guelph, ON N1H 3R8  
Tel. (519) 836-2840

Executives:      Gen. Mgr. T. Ryan  
                 Plant Mgr. P. Robinson  
Employees:      Plant 300      Office 50  
Square feet:      Plant 100,000      Office 20,000  
Products:      Stationary power tools, light machinery,  
                 iron foundry, cast iron  
Materials  
purchased:      CARBON STEEL SHEETS; ALLOY & TOOL  
                 STEEL RODS: bars; IRON CASTINGS  
Major capital  
machinery:      Presses, milling machinery, horizontal  
                 & vertical milling machinery, spot  
                 welders, lathes, grinding equipment,  
                 rotary grinders, surface grinders,  
                 sanders, pneumatic sanders, saws &  
                 cutting equipment, horizontal & band  
                 saw, cut-off saws, circular saws, air  
                 drills, casting, molding bending ma-  
                 chines, moulding machinery, shell  
                 moulding machinery, painting equipment,  
                 automatic paint line, spray painting  
                 booths, pollution control equipment,  
                 electronic test equipment, fork lifts,  
                 air compressors, roller conveyors, air  
                 hoist

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FORD SMITH MACHINE CO. LTD.      675 Idlewide Ave  
Fruitland, ON L0R 1L0  
Tel. (416) 643-1273

Executives:      Pres. V.G. Lamont  
Employees:      65  
Products:      Grinders wheel hoist

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(Ontario)

SKIL CANADA LIMITED

1190 Caledonia Road  
 Toronto, ON M6A 2W6  
 Tel. (416) 789-7811

Executives:	Gen. Mgr. R. Kazakoff Plant Mgr. J. Smetz
Employees:	Plant 40      Office 80
Square feet	Plant 70,000      Office 10,000
Products:	Major: portable power tools
Materials purchased:	ALLOY & TOOL STEEL: sheets, rods, bars; COPPER WIRES;    ALUMINUM PLATES: slabs
Major capital machinery:	Presses, punch pres, hydraulic presses, milling machinery, welding machinery, spot welders, riveting equipment, lathes, grinding equipment, cylindrical, horizon- tal & optical grinders, sanders, pneuma- tic sanders, buffer, die-casting machines, painting equipment, automatic paint line, spray painting booths, coil winders, decoilers, duff collecting units, fork lifts, air compressors, overhead cranes, conveyors, roller conveyors, air hoist

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(Ontario)

## STANLEY WORKS LTD.

65 Imperial St  
Hamilton, ON L8L 4E2  
Tel. (416) 544-1124

Executives: Gen. Mgr. R. Weir  
Plant Mgr. P. Erickson  
Product. Mgr. L. Rozzo

Employees: Plant 145 Office 53

Square feet: Plant 76,000 Office 9,800

Products: Major: residential hardware, hinges & butts, strap & tee hinges, hasps, shelf brackets, barn door track & hangers

Materials purchased: CARBON STEEL: rods, bars, strips, coils;  
ALLOY & TOOL STEEL: plates, slabs, rods, bars; BRONZE-BRASS: strips, coils

Major capital machinery: Presses, punch press, stamping presses, polishing lathes, buffer, cold-forming equipment, bolt makers, thread-rolling equipment, dust collecting units, rectifiers, tanks, vacuum pump, fork lifts, air compressors, overhead cranes, conveyors, roller conveyors, plating equipment, packing machines, special purpose machines

## EMERSON ELECTRIC CANADA LTD.

Highway 148  
Markham, ON L3P 3J6  
Tel. (416) 297-2330

Executives: Gen. Mgr. F. Parker  
Plant Mgr. P. Lord

Employees: Plant 100 Office 50

Square feet: Plant 138,000 Office 12,000

Materials purchased: COPPER/COPPER BASE ALLOY; CASTINGS;  
PRECIOUS METALS; PAINTS/VARNISHES/GLUES/  
ADHESIVES; BRASS; STEEL

Products: Major: electrical controls, gears & pulleys

Major capital machinery: Presses, drill presses, kick presses, punch press, hydraulic presses, press brakes, grinding equipment, milling machinery, welding machinery, riveting machinery, compressed air tools, painting equipment, spray painting booths, baking ovens, fork lifts

EVANS ROBERT CO. OF CDA LTD

2525 Dunwin Dr, Unit 13  
Mississauga, ON L5L 1T2  
Tel. (416) 828-0422

Executives: Pres. Robert G. Evans  
Employees: 3  
Products: Metal cutting saws

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GILSON BROTHERS COMPANY CAN.

3325 Orlando Dr.  
Mississauga, ON L4V 1C5  
Tel. (416) 677-8641

Executives: Gen. Mgr. I. Dickson  
Plant Mgr. R. McKaig

Employees: Plant 100 Office 20

Square feet: Plant 120,000 Office 9,000

Products: Major: rotary lawn mowers, rotary  
tillers, snowthrowers

Materials purchased: ALLOY & TOOL STEEL: sheets, rods, bars;  
ALUMINUM TUBING, pipes; IRON CASTINGS;  
ZINC: castings, fittings, fasteners

Major capital machinery: Presses, punch press, cut-off presses,  
press brakes, horizontal & vertical  
milling machinery, semi-automatic MIG,  
lathes, grinding lathes, surface grinders,  
air drills, pipe benders, painting  
equipment, automatic paint line, spray  
painting booths, fork lifts, air com-  
pressors, conveyors

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OUTBOARD MARINE CORP. CANADA

910 - 739 Monaghan Road  
Peterborough, ON K9J 5K5  
Tel. (705) 743-2261

Executives: Gen. Mgr. M. Potter  
Plant Mgr. R. Gibbons  
Product. Mgr. M. Finnie

Employees: Plant 950 Office 450

Square feet: Plant 350,000 Office 50,000

(cont'd)

(Ontario)

Products:	Major: outboard motors, lawn mowers (rotary)
Materials purchased:	CARBON STEEL: sheets, rods, bars, strips, coils, tubing, pipes; ALLOY & TOOL STEEL: sheets, rods, bars, strips, coils; STAINLESS RODS: bars; ALUMINUM: ingots pigs, billets, castings
Major capital machinery:	Presses, trim presses (hyd. trim presses), punch press, high-speed punch presses, stamping presses, hydraulic presses, press brakes, multi-stage punch presses, milling machinery, horizontal & vertical milling machinery, roll-form mills, welding machinery, spot welders, semi-automatic MIG, manual TIG, soldering equipment, riveting equipment, stick welder, soldering sheels, lathes, engine lathes, polishing lathes, machine lathes, grinding equipment, rotary grinders, internal grinders, external grinders, cylindrical, horizontal & optical grinders, hand grinders, surface grinders, furnaces, curing ovens, burners, electric melting furnaces, annealing furnaces, induction furnaces, heat treatment furnace, sanders, pneumatic sanders, saws & cutting equipment, horizontal & band saw, cut-off saws, circular saws, production shears, cutting machine, air drills, casting, molding bending machines, die-casting machines, pipe benders, cold-forming equipment, painting equipment, automatic paint line, spray painting booths, wire drawing machinery, wire straightening machinery, coil winders, thread-rolling equipment, automatic crimping machinery, decoilers, anodizing equipment, distillation units, dust collecting units, rectifiers, tanks, vacuum pump, magnetizer, electronic test equipment, fork lifts, air compressors, overhead cranes, conveyors, roller conveyors, air hoist

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PIIONEER CHAIN SAW CORP. INC.

775 Neal Drive  
Peterborough, ON M9J 6X7  
Tel. (705) 742-3894

Executives:	Chairman of the Board: J. Mason
Employees:	100
Products:	Chain saw

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QUEBEC MANUFACTURERS OF ELECTRICAL PRODUCTS

ACIER GIROLE INC. Gilles Fontaine, président Tél. (514) 645-7466	3670, rue Jean Viel Pointe-aux-Trembles, (Québec) H1B 5N3
ACME ENGINEERING PRODUCTS LTD G.S. Presser, ing. gérant général Tél. (514) 342-5656	5706, Royalmount Ave. Montréal, (Québec) H4P 1K5
ALCAN CANADA PRODUCTS LTD R. Devilliers, dir. des ventes Tél. (514) 877-2340	1000, rue Sherbrooke, ouest Montréal, (Québec) H3C 3H2
ALLEN WEST (CANADA) LTD J.A. Shanks, vice-président Tél. (514) 739-2236	175, rue Bates C.P. 8, Mont-Royal Montréal, (Québec) H3P 3B8
ARCO METALS INC. Nicolas Pompas, président Tél. (514) 321-4830	8165, boul. Langelier Saint-Léonard, (Québec) H1P 2B7
ARTCRAFT DE MONTREAL LTEE Albert Cohen, président Tél. (514) 353-7200	8525, 4e avenue Anjou, (Québec) H1J 1A8
ASEA INDUSTRIES LTEE Arne Strombäck, président Tél. (514) 652-2901	1600, Montée Sainte-Julie Sainte-Anne-de-Varenes (Québec) J0L 2P0
B.C. WELDING CO. LTD R. Carrière, président Tél. (514) 321-1533	8830, rue Champ d'Eau Saint-Léonard (Québec) H1P 2Y8
BARDOCZ G. ELECTRO TECHNICAL CO. G. Bardocz, président Tél. (514) 279-6744	6322, boul. Saint-Laurent Montréal, (Québec) H2S 3C3

BADARD GIRARD INDUSTRIES M. Séguin, directeur général Tél. (514) 324-3200	5845, rue Couture Montréal, (Québec) H1P 1A8
BEEL CONTROLS LTEE Tél. (514) 334-6500	2650, boul. Pitfield Montréal, (Québec)
BERFAB LTEE Roland Bouchard, président Tél. (514) 866-2419	820, ave. du Collège Berthierville, (Québec)
BLANK WILLIAM MFG.CO.LTD W. Blank, président Tél. (514) 861-3921	270, rue Queen Montréal, (Québec) H3C 2N7
BOMBARDIER MLW LTEE Gérard Lepage, président Tél. (514) 253-7333	1505, rue Dickson Montréal, (Québec) H1N 2H7
BROWN BOVERI (CANADA) LTD O. Crevier, sec.-trésorier Tél. (514) 697-6210	4000, route Trans-Canadienne Pointe-Claire, (Québec) H9R 1B2
CABLES PHILIPPS LTEE J.M. Vinette, gérant Tél. (418) 723-8783	234, rue Léonidas Rimouski, (Québec) G5L 2T2
CAMCO LTD J.C. Laforgue, gérant général Tél. (514) 259-3751	5781, rue Notre-Dame, est Montréal, (Québec) H1N 2C6
CEGELEC INDUSTRIES INC. Roland Olivier, président Tél. (514) 659-8921	1400, boul. Industriel Laprairie, (Québec) J5R 2E5
CHLORIDE SYSTEMS CANADA LTEE Tél. (514) 735-2573	4940, rue Bourg Montréal, (Québec) H4T 1J2
CIDEX LTEE Marcel Piette, président Tél. (514) 687-3350	1705, rue Berlier Laval, (Chomedey) (Québec) H7S 1Z9

CIGENTEC INC. Paul Mailhot, président Tél. (514) 636-8802	2063, rue Chartier Dorval, (Québec) H4Y 1B3
CLEVEMONT INDUSTRIES LTEE E. Lenkov, président Tél. (514) 931-6243	4035, rue Richelieu Montréal, (Québec) H4C 1A1
COLUMBIA ELECTRIC LTD R. Sutterlin, président Tél. (514) 691-2220	Saint-Isidore Laprairie, (Québec) J0L 2A0
COLUMBIA INTERNATIONAL LTEE K. Turner, président Tél. (514) 677-8987	1150, boul. Marie-Victorin, est Longueuil, (Québec)
COMPAGNIE HENDERSON BARWICK LTEE K. Barwick, président Tél. (514) 935-4623	176, rue Peel Montréal, (Québec) H3C 2G7
CANOPEC Tél. (514) 457-9370	19,400, Cruikshank Baie d'Urfé, (Québec) H9X 3P1
CONSOLIDATED PRODUCTS LTD R. Toledano, président Tél. (514) 488-0124	126, rue Ronald Montréal, (Québec) H4X 1M8
CONTROLES SYTROLEC LTEE D.R. Taylor, président Tél. (514) 324-8991	5171, rue Amiens Montréal, (Québec) H1G 3G4
CUSCO INDUSTRIES LTEE E. Conzen, président Tél. (514) 334-1540	393, rue Deslauriers Montréal, (Québec) H4N 1W3
DANBY CORPORATION P. Greenway, vice-président Tél. (514) 341-3040	5815, rue Ferrier Montréal, (Québec) H4P 1M9
DEUTZ DIESEL (CANADA) LTD T. Erdhuetter, président Tél. (514) 341-6540	90, Montée de Liesse Montréal, (Québec) H4T 1N4

DIVERSIFIED LIGHTING INDUSTRIES E. Grunikewicz, président Tél. (514) 694-2702	227-M, av. Brunswick Pointe-Claire, (Québec) H9R 4X5
DOMINION CUTOUT LTEE R. Santoloni, gérant d'usine Tél. (514) 334-2181	483, rue Deslauriers Ville Saint-Laurent, (Québec) H4N 2W2
DOMINION ENGINEERING CO. LTD Max Drouin, président Tél. (514) 634-3411	795, 1ère avenue Lachine, (Québec) H8S 4C2
DORVAL DIESEL LTEE W.S. Devlin, président Tél. (514) 684-1810	2190, boul. Hymus Montréal, (Québec) H4S 1K1
DUAL-LITE PRODUCTS LTD G. Allard, directeur général Tél. (514) 326-8000	9345, Pascal Gagnon Saint-Léonard (Québec) H1P 1Z4
DUFRESNE INC. M. Dufresne, président Tél. (819) 563-5310	1150, rue Galt Sherbrooke, (Québec) JoG 1Y5
DYNATRON INC. A. Wallace, président Tél. (514) 636-0847	2275, 46e avenue Lachine, (Québec) H8T 3C9
ELCAR INTERNATIONAL LTD W. Lee, président Tél. (514) 332-2640	5620, Bois Francs Montréal, (Québec) H4S 1B2
ELECTRIC SWITCHGEAR LTD J.W. Fairlie, président Tél. (514) 671-7206	115, av. Saint-Denis Saint-Lambert, (Québec) J4P 2G1
ELECTROCHIM CANADA LTEE J.-L. Provencher, président Tél. (819) 732-4613	19, rue Notre-Dame, ouest Victoriaville, (Québec) G6P 1R4

ELECTRODESIGN LTEE H. Schwartz, président Tél. (514) 636-4838	1925, 52e avenue Lachine (Québec) H8T 3C3
ELECTROLIER CORPORATION (G.T.E. Sylvania) W.L. Vincent, vice-président Tél. (514) 352-2550	8501, rue Jarry, est Montréal, (Québec) H1J 1H7
ELECTROLUC CANADA LTD T. Van Duynhoven, gérant général Tél. (514) 695-1470	2751, route Trans-Canadienne Pointe-Claire (Québec) H9R 1B4
ELECTRO-STEAM MFG. CO.LTD M. Rosenberg, président Tél. (514) 272-6122	287, rue Villeneuve, ouest Montréal, (Québec) H2V 2R2
ELKON ELECTRICAL CO. LTD H.G. Clark, gérant général Tél. (514) 636-0510	1961, 55e avenue Dorval, (Québec) H9P 1G9
EMERGI-LITE INC. Tél. (514) 332-5640	2800, de Miniac Montréal, (Québec) H4S 1K9
ENTREPRISES R.D.L. LTEE R. Henri, président Tél. (819) 362-3619	1139, av. Forant Plessisville, (Québec) G6L 2Y2
ENTREPRISES D'ELECTRICITE J&R INC. D. Panni, président Tél. (514) 324-5110	10,443, rue Pigeon Montréal, (Québec) H1G 5T6
EBS BATTERIES R. Pociurko, président Tél. (514) 658-8715	1600, rue Beaulac Saint-Jean, (Québec) J3B 6Z8
EUROBEC METAL LTEE M. Ciocca, directeur gérant Tél. (514) 562-8854	525, boul. Aeroparc, C.P. 427 Lachute, (Québec) J8H 3X9



FAGUY LTEE R. Faguy, président Tél. (514) 341-3610	750, Montée de Liesse Montréal, (Québec) H4T 1P3
FEDERAL PIONEER LTEE R. Babineau, gérant d'usine Tél. (514) 378-9025	561, rue Maisonneuve Granby, (Québec) J2G 3H5
FERRANTI-PACKARD LTEE C. E. Bégin, gérant d'usine Tél. (819) 374-4651	3400, av. Bellefeuille, C.P. 1115 Trois-Rivières, (Québec) G9A 5K4
FOISY R. LTEE G. Lafond, dir. de la production Tél. (514) 253-1300	2150, rue Théodore Montréal, (Québec) H1V 3B9
FOSTER REFRIGERATOR OF CANADA LTD S.D. Hubbard, président Tél. (819) 478-8101	333, rue Janelle Drummondville, (Québec) J2C 3E2
FRANK'S PIPING CO. LTEE J.M. Hardy, président Tél. (819) 846-2771	20, route Windsor, C.P. 160 Bromptonville, (Québec) J0B 1H0
FULMEN INC. E. Tufenkj, président Tél. (514) 659-9614	170, boul. de l'Industrie Candiac, (Québec) J5R 1J3
G.T.E. SYLVANIA CANADA G. Leblanc, directeur Tél. (514) 735-4201	8750, Côte de Liesse Ville Saint-Laurent, (Québec) H4T 1H3
GAUBEL METAL LTEE D. Bélanger, sec.-trésorier Tél. (514) 773-2676	2800, boul. Vanier Saint-Hyacinthe, (Québec) J2S 6M1
GENERAL DIESEL INC. G. Gilbert, président Tél. (418) 651-5371	2997, rue Watt Sainte-Foy, (Québec) G1X 3W1

GENTEC INC. Tél. (418) 651-8000	2625, rue Dalton Sainte-Foy, (Québec)
GIANT ELECTRIC MFG.CO. LTD C. Lesage, vice-président Tél. (514) 645-8894	40, boul. Lesage Montréal est, (Québec) H1B 5H3
H. ROBERGE INC. P. Roberge, vice-président Tél. (418) 687-0550	1505, rue Provinciale Duberger, (Québec) G1K 7S1
H&R SHEET METAL WORKS M. Balin, président Tél. (514) 731-9474	6035, Côte de Liesse Montréal, (Québec) H4T 1C7
M.M.B. CONTROLS LTD A. McAlear, président Tél. (514) 336-1075	6525, Henri-Bourassa, ouest Saint-Laurent, (Québec) H4R 1C8
HOP CONSULAB INC. J.-L. Beaudoin, président Tél. (418) 661-3701	415, av. des Laurentides Beauport, (Québec) G1C 4R9
HARBOUR INDUSTRIES (CANADA) LTEE J. Jeaslip, président Tél. (514) 293-5304	460, rue Normandie Farnham, (Québec) J2N 1W4
HARDT J. MANUFACTURING INC. V. Field, président Tél. (514) 631-7271	5150, rue Fairway Lachine, (Québec) H8T 1B8
HEINEMANN ELECTRIC CANADA LTD D.T. Shaw, président Tél. (514) 332-1163	515, rue Deslauriers Saint-Laurent, (Québec) H4N 1W2
HUNT & MOSCROP (CANADA) LTEE F. Unsworth, directeur-gérant Tél. (514) 866-8170	648, rue Moeller Granby, (Québec) J2G 8N1
HUPP CANADA LTEE Y. L'Heureux, président Tél. (514) 589-5681	802, boul. l'Ange-Gardien L'Assomption, (Québec) JoK 1G0

HUSKY FLOOR MACHINE INC. Pierre Hébert, président Tél. (514) 526-4401	4281, rue Iberville Montréal, (Québec) H2H 2L5
I.T.E. INDUSTRIES LTD M. Brosseau, rep. technique Tél. (514) 636-6860	9105, rue Salley La Salle, (Québec) H8R 2C8
I.T.T. WIRE & CABLE Bernard Ledoux, président Tél. (514) 436-1450	1111, boul. International St-Jérôme, (Québec) J7Z 5V9
INDUSTRIE FABRICO(1964) LTEE Pierre Langlade, président Tél. (514) 324-1660	8190, le Creusot Saint-Léonard, (Québec) H1P 2A4
INDUSTRIES MKE INC. J.H. Vachon, président Tél. (514) 659-1996	183, boul. Montcalm nord Candiac, (Québec) J5R 3L6
INFRANOR (CANADA) INC. Jacques Roberge, président Tél. (514) 773-5503	2525, rue Trudeau Saint-Hyacinthe, (Québec) J2S 1H5
INGENIERIE B.G. CHECO LTD Fred H. Ernst, président Tél. (514) 382-3030	110, boul. Drémazie, ouest Montréal, (Québec) J2P 1B9
J. ALPHONSE LARIVIERE ENR. A. Larivière, président Tél. (819) 8262	313, rue Principale Saint-Romuald, (Québec) G6W 5M6
KALOR INC. André Bassé, président Tél. (514) 325-2491	9190 Boul. Langelier Saint-Léonard, (Québec)
KLOCKNER MOELLER LTD R. Vanasse, directeur commercial Tél. (514) 325-4307	9386, boul. Viau Saint-Léonard, (Québec) H1R 3B5

LA COMPAGNIE D'APPAREILS ELECTRIQUES PEERLESS LTEE M. Leebovich, gérant général Tél. (514) 526-1671	5585, rue Fullum Montréal, (Québec) H2G 2H5
LA COMPAGNIE ELECTRIQUE PIONEER DU QUÉBEC INC. Paul Raess, gérant d'usine Tél. (514) 378-9018	C.P. 272 Chemin Bernard Granby, (Québec) J2G 8E5
LA COMPAGNIE GENERALE ELECTRIQUE DU CANADA LTEE G. Babineau, gérant d'usine Tél. (418) 683-3431	1130, boul. Charest, ouest Québec, (Québec) G1N 2E2
LA COMPAGNIE GENERALE ELECTRIQUE DU CANADA LTEE G. Lebrun, gérant d'usine Tél. (418) 878-3636	75, d'Anvers Parc Industriel Saint-Augustin, Cité Portneuf, (Québec), G0A 3E0
LA COMPAGNIE GENERALE ELECTRIQUE E. Corbière, gérant d'usine Tél. (514) 274-7751	280, rue Faillon, ouest Montréal, (Québec) H2R 2W2
LALONDE FRANK P. LTD F.P. Lalonde, président Tél. (514) 336-4600	2895, rue Halpern Saint-Laurent, (Québec) H4S 1E9
LAZARE ELECTRONICS LTD L. Sihwartzman, président Tél. (514) 620-1230	15,887, boul. Gouin, ouest Sainte-Geneviève, (Québec) H9H 1C5
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LES BETONS CENTRIFUGES LTEE Gaston Moreau, président Tél. (514) 695-3395	3125, boul. Saint-Charles Kirkland, (Québec) H9H 3B9

LES CABLES INDUSTRIELS J.-Paul Côté, directeur général Tél. (418) 681-7874	1081, boul. Pierre-Bertrand Ville Vanier, (Québec) G1M 2E8
LES INDUSTRIES ASTON INC. G. Courchesne, président Tél. (819) 399-2175	C.P. 220, 50, rue Courchesne Saint-Léonard d'Aston, (Québec) J0C 1M0
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MAJOR METAL PRODUCTS REG Serge Proulx, président Tél. (514) 539-0769	31, rue Taylor Waterloo, (Québec) J0E 2N0
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MORECO ELECTRIC INC. J.-Claude Isabelle, président Tél. (819) 537-7747	990, rue de la Station Shawinigan, (Québec) G9N 1W4
MOTEURS LEROY SOMER CANADA LTEE A. Redheuil, directeur général Tél. (514) 378-0151	C.P. 40, 925 boul. Leroy Somer Granby, (Québec) J2J 1E9

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OUELLET CHARLES E. INC. R. Lizotte, contrôleur Tél. (418) 247-3947	98, 9e Rue Ville de L'Islet, (Québec) G0R 2B0
P.M. MOTEUR ELECTRIQUE ENR André Pagé, propriétaire Tél. (819) 536-6209	1190, boul. Industriel Shawinigan sud, (Québec) G9N 6T5
P.M. WRIGHT LTEE B. Wright, président Tél. (514) 337-3331	1300, boul. Jules-Poitras Saint-Laurent, (Québec) H4N 1X8
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PIRELLI CABLES LTEE M. DeGiorgis, président Tél. (514) 346-6831	77, Richelieu St-Jean, Cté Chambly (Québec) J3B 6X2



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POWER SURVEY & EQUIPMENT LTD P. Kanemy, président Tél. (514) 767-5627	2216, av. de l'Eglise Montréal, (Québec) H4E 1H4
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PRODUITS BEL PRODUCTS INC. F. Bélanger, président Tél. (514) 327-2800	6868, boul. Maurice Duplessis Montréal nord, (Québec) H1G 1Z6
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PRODUITS WHITE STAR DU CAN. LTEE Pierre Courtois, directeur Tél. (514) 321-8815	9155, boul. Langelier Saint-Léonard, (Québec) H1P 3A2
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SANGAMO CO. LTD N. Matton, gérant d'usine Tél. (819) 375-4896	3950, boul. Royal Trois-Rivières, (Québec) G9A 4M7
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SHERELCO INC. R. Turcotte, gérant d'usine Tél. (819) 569-6373	1635, rue Denault, C.P. 217 Sherbrooke, (Québec) J1H 5H8
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AERO MACHINING LIMITED 5411 boul. Industriel	Montréal-Nord, H1G 3H7
ALFRED DESPRES INC. 66 rue Saint-André	Québec, H1K 3Y2
AMOS MACHINERIES (1960) Inc. 212, 1ère Avenue, Est	Amos, J9T 1H3
APRIS MACHINE SHOP INC. 5530, rue Paré	Mont-Royal, H4P 2M1
ASTRO MACHINE SHOP LIMITED 10,875 Place Moisan	Montréal, H1G 4N6
ATELIER D'USINAGE J.J. TREMBLAY INC. 345, rue Dessureault	Cap-de-la-Madeleine, G8T 2L8
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B & M ACCURATE MACHINE SHOP INC. 6637, rue P.E. Lamarche	Montréal, H1P 1J6
CLARO PRECISION INC. 8140, rue Lafrenaie	St-Léonard, H1P 2A9
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DESROBERTS INC. B.P. 965 (2399 rue Royale)	Trois-Rivières, G9A 4L6
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EASTVIEW ENGINEERING MACHINE SHOP 70, rue Adrien Robert	Hull, J8Y 3S2
ECONOMIC PRODUCTION WORK LTD. 8776, rue Chamo d'Eau	Ville St-Léonard, H1P 1Y3
ENGINE REBUILDERS CO. LTD. 6391, boul. St-Laurent	Montréal, H2S 3C3
EQUIPEMENTS DENIS Rue Barraute	Abitibi, J0Y 1A0
G.P. MACHINING & WELDING INC. 741 boul. Harwood	Vaudreuil, J7V 1Y6
GAMMA MOULD & DIE CO.LTD. 10585, rue Racette	Montréal-Nord, H1G 5H3
GINGRAS & CHAREST INC. 550, rue Ste-Hélène	Québec, G1K 3M1
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GUERETTE TOOL INC. 9915, rue Cobourg	Montréal, H1H 4W5
INDUSTRIAL MACHINING LIMITED 3650, boul. St-Joseph, est	Montréal, H1X 1W6
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LAMBERT MACHINE INCORPOREE 2300, rue Bellefeuille	Trois-Rivières, G9A 5J3
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LES ATELIERS P A T INC 3525, rue Robert Chevalier	Montréal, H1A 3R7
LES INDUSTRIES G COLLIN INC. 10790, ave. Salk	Montréal, H1G 4Y1
LES INDUSTRIES SAGUENAY LIMITEE 22, 1ère rue	Port Alfred, G7B 2G8



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MACHINE WORKS (1972) LTD 9601 boul. St-Laurent	Montréal, H2N 1P6
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MUELLER MACHINERY CO. REG'D 550, rue Sebastopol	Montréal, H3C 1T1
PAPINEAU MACHINE SHOP INC. 7912, 16e Avenue	Montréal, H1Z 3P5
PARAMOUNT SPECIALTIES LTD. 29, boul. St-Joseph	Lachine, H8S 2K9
PARE MACHINE SHOP INC. Route 13	St-Théodore d'Acton, J0H 1Z0

PARK AVENUE ENGINE REBUILDING CO. LTD. 4900, boul. Métropolitain, est	St-Léonard, H1S 1A3
PAUL SICOTTE & FILS LTEE 71, rue Dubois	Ste-Thérèse, J7E 1K4
PERRAULT MACHINE SHOP LTD 4660, 18e avenue	Montréal, H1X 2N7
POUDRIER & FRERES LTEE C.P. 56, rue Cantin	Victoriaville, G6P 6S4
PRECISION MECHANICS LTD 8890, 56e avenue	Rivières-des-Prairies, H1E 2L6
QUELOZ & ASSOCIES INC. 4075 boul. Hamel	Ancienne Lorette, G2E 2H3
R N CARD CLOTHING CO. LTD. 625, rue Cowie	Granby, J2G 8X4
RAY MACHINE SHOP INC. 431, rue Otis	Sept-Iles, G4B 1L3
RODRIGUE METAL LTEE (ST-ROMUALD) 2515, rue Dalton	Ste-Foy, G1P 3S5
SICOTTE LTEE 10,563 boul. 1'Archevêque	Montréal-Nord, H.L 3A1
SPEEDWAY MACHINE WORKS INC. 2060 rue Francis Hughes	Chomedey, Laval, H7S 1N4
TAC MACHINE SHOP INC. 264 Montigny	St-Jérôme, J7Z 5P9
TECHNICAL ACCESSORIES LTD. 5595, rue Fullum	Montréal, H2G 2H5

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TILLY INDUSTRIES LTD. 720, ave. Deslauriers	Montréal, H4N 1W5
TOOL & DIE PRECISION WORKS LTD. 230, rue Peel	Montréal, H3C 2G7
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T2H OP7

WESTERN CANADA IMPORTERS  
(CALGARY) LTD  
Tel. (403) 269-4941

339, 10th Ave. S.E.  
P.O. Box 788  
T2P 2J6

Edmonton

LINK HARDWARE CO. LTD.  
Tel. (403) 453-3651

14,810, 131st Ave.  
T5J 2P8

MERIT STORES LTD.  
Tel. (403) 424-6475

400-10355 Jasper Ave.  
T5J 1Y6

Medecine Hat

THE BLACK HARDWARE LTD.  
Tel. (403) 526-5921

656, Second St. S.E.  
P.O. Box 190  
T1A 7E9

B R I T I S H C O L U M B I ABurnaby

KIRKLAND & THOMPSON LTD.  
Tel. (604) 299-7314

6994 Greenwood St.  
V5A 1X8

Kamloops

ALPINE WHOLESALE LTD.  
Tel. (604) 372-8285

P.O. Box 3100  
929, Laval Cres.  
V2C 6B7

Nelson

WOOD VALLANCE HARDWARE  
(1968) LTD.

593 Baker St.,  
P.O. Box 500  
V1L 5R3

Vancouver

ACKLANDS LTD.  
Tel. (204) 956-0880

8651 Eastlake Drive  
P.O. Box 2008  
V6B 3R1

E.B. HORSMAN & SON  
Tel. (604) 255-4661

1150 Rayman Ave.  
P.O. Box 9570  
V6B 4L3

MALKIN & PINTON INDUSTRIAL  
Tel. (604) 876-1321

325 East 5th Ave.  
V5T 1H6

M A N I T O B AWinnipeg

C.C. CRAIG CO. LTD.  
Tel. (204) 633-9192

1500 King Edward St.  
R3H 0R5

IMPERIAL HARDWARE LTD.  
Tel. (204) 942-5656

99 King St.,  
R3B 1H3

MacLEODS DIV. OF MacLEOD  
STEDMAN LTD.  
Tel. (204) 453-9511

1530 Gamble Place  
P.O. Box 6800  
R3T 1N6

MARSHALL WELLS LTD.  
Tel. (204) 775-4511

1395 Ellice Ave.  
R3G 0G3

Winnipeg (cont'd)

MERCHANTS CONSOLIDATED LTD.  
 FALCON HARDWARE DIV.  
 Tel. (204)224-1231

Box 1025  
 630 Kernaghan Ave.  
 R3C 2X3

WALTER WOODS LTD.  
 Tel. (204) 589-5311

782 Main St.

N E W      B R U N S W I C KBathurst

EDDY HARDWARE (1971) LTD  
 Tel. (506) 546-6631

615 Main Street  
 E2A 4A1

Fredericton

J.W. BIRD & CO. LTD.  
 Tel. (506) 455-9915

P.O. Box 1090  
 E3B 5C6

Moncton

CRAWFORD HOUSEWARES LTD.  
 Tel. (506) 382-9301

42 Brandon St., Box 1030,  
 E1C 8P2

SUMNER CO. LTD.  
 Tel. (506) 855-1320

Box 550,  
 1180 St. George Blvd.  
 E1C 8M5

Saint John

EMERSON & FISHER LTD.  
 DIV. OF SUMNER CO. LTD.  
 Tel. (506) 693-2521

P.O. Box 250  
 84-87 Canterbury St.  
 E2L 3Y6

THORNES LIMITED  
 Tel. (506)652-1000

P.O. Box 967  
 331 Chesley Dr.  
 E2L 4E4

N E W F O U N D L A N DMt\_Pearl

A.E. HICKMAR CO. LTD BUILDING	P.O. Box 790
SUPPLIES(Div. Blackmarsh)	A1N 2Y1
Tel. (709) 364-4242	

St\_John's

AYER'S LTD.	P.O. Box 70
Tel. (709) 726-7740	70 Water St.
	A1C 5H8

STEERS LTD.	P.O. Box 1388
Tel. (709) 722-1525	A1C 5N7

N O V A S C O T I AAmherst

DUNLAP BROTHERS HARDWARE LTD.	111-113 Victoria St.
Tel. (902) 667-3338	B4H 3Z5

Kentville

T.P. CALKIN LTD.	P.O. Box 490
Tel. (902) 678-3204	B4N 3X5

New\_Glasgow

THOMPSON & SUTHERLAND LTD.	New Glasgow, N.S.
Tel. (902) 752-2551	

Yarmouth

E.K. SPINNEY LTD.	4 Lovitt St.
Tel. (902) 742-2478	B5A 4B3

O N T A R I OBramalea

ACTION HARDWARE LTD.  
Tel. (416) 457-8521

115 West Dr.  
L6T 3T8

Chatham

McKEOUGH SONS CO. LTD.  
Tel. (519) 352-7110

P.O. Box 940  
30 Dover St.  
N7M 5L3

Downsview

UNION HARDWARE WHOLESALE CO.  
Tel. (416) 633-3112

4476 Chesswood Dr.  
V3J 2B9

Hamilton

GANCO HOUSEWARES LTD.  
Tel. (416) 522-1616

14 Ferguson Ave. N.  
L8R 1K9

NORTHERN CANADA SALES LTD.  
DIV. OF STEETLEY INDUSTRIES  
Tel. (416) 527-6648

176 Shaw St.  
L8N 3C2

VALLANCE BROWN CO. LTD.  
DIV. OF STEETLEY INDUSTRIES  
Tel. (416) 527-6648

175 Shaw St.  
L8N 3S2

WILKINSON & KOMPASS LTD.  
Tel. (416) 527-3611

P.O. Box 518  
400 Wentworth St. N.  
L8N 3K4

Kingston

W.B. DALTON & SONS(1971) LTD  
Tel. (613) 546-2234

P.O. Box 4100  
152 Hickson Ave.  
K7L 5A4



Kitchener

Wm. KNELL & CO. LTD.  
Tel. (519) 578-1000

199 Victoria St. South  
P.O. Box 760  
N2G 4C3

C.N. WEBER LTD.  
Tel. (519) 888-4100

675 Queen St. S.  
P.O. Box 1418  
N2G 4H6

London

HOBBS HARDWARE CO(1968) LTD.  
Tel. (519) 451-0100

1717 Oxford St. E.  
P.O. Box 5000  
N6A 4L7

D.H. HOWDEN & CO. LTD.  
Tel. (519) 686-2200

635 Southdale Road  
Box 2485  
N6A 4G8

Mississauga

BAIL SUPERLOR LTD CAREFREE  
GARDEN PRODUCTS DIV.  
Tel. (416) 278-5201

1155 Birchview Dr  
L5H 3E1

Mississauga

ALLONT LTD.  
Tel. (416) 821-4101

6789 Millcreek Drive  
L5N 2W1

Ottawa

GRAY-HARVEY CO. LTD.  
Tel. (813) 731-9850

2487 Kaladar Ave.  
K1V 8B9

Pembroke

COCKBURN & ARCHER LTD.  
Tel. (613) 732-9927

172 Pembroke St. W.  
K8A 6X7

Scarborough

CANADIAN CHINA & GLASS CO.  
Tel. (416) 752-6330

80 Midwest Road  
M1P 4R2

St\_Jacobs

HOME HARDWARE STORES LTD.  
Tel. (519) 664-2252

34 Henry St.  
N0B 2N0

Tillsonburg

FLECK MFG. COMPANY SUBSIDIARY  
OF STEETLEY INDUSTRIES  
Tel. (519) 842-3641

91 Lincoln St.  
N4G 2P9

Timmins

MARSHALL ECCLESTONE LTD

249, 3rd Ave., Box 530  
P4N 7E9

Toronto

CASSIDY'S LTD.  
Tel. (416) 239-3171

P.O. Box 103, Station U  
M8Z 5N7

COCHRANE-DUNLOP LTD  
Tel. (416) 865-0304

P.O. Box 50  
50 Royal Bank Plaza, North Tower  
M5J 2J4

HARDWARE AGENCIES LTD.  
Tel. (416) 364-2461

738 Dundas St. E.  
M5A 2C3

Weston

C.E. SPRINGER & CO. LTD.  
Tel. (416) 741-2040

700 Ormont Dr.  
M9L 1S8

Windsor

J.T. WING LTD.  
Tel. (519) 253-2431

380 Pitt St.  
N9A 6K8

P R I N C E   E D W A R D   I S L A N DCharlottetown

THE ROGERS HARDWARE CO.LTD.  
Tel. (902) 894-8501

P.O. Box 606  
Confederation Plaza  
C1A 7L3

Summerside

R.T. HOLMAN LTD.  
Tel. (902) 436-2222

Water St.  
C1N 1B7

Q U E B E CAlma

BOILY & CO. LTD. SUBY. OF  
LACROIX (QUEBEC) INC.  
Tel. (418) 662-3468

665 DuPont Sud  
G8P 5W2

Boucherville

B.I.D. BUILDING MATERIALS  
OF CANADA LTD, MTL DIV.

1295 Newton  
J4B 5H2

MARCHANDS RO-NA INC.  
Tel. (514) 655-7610

1250 Nobel St.  
J4B 5K1

A. PRUD'HOMME & FILS LTEE  
DIV. OF LACROIX (QUEBEC) INC.  
Tel. (514) 655-2121

180 DeNormandie  
J4B 5S7

Cap-de-la-Madeleine

MORIN & FRERES INC.

65 boul. Ste-Madeleine  
C.P. 340  
G8T 3K8

Chicoutimi

FERCOMAT INC.  
Tel. (418) 543-1565

155 Salaberry Ave.  
G7H 5H5

Gatineau

PAPINEAU DISTRIBUTORS INC.  
Tel. (819) 663-2463

776 boul. Maloney  
J8P 1G6

Lévis

J.L. DEMERS, DIV. OF LACROIX  
(QUEBEC) INC.  
Tel. (418) 837-4711

57 Commerciale St.  
G6V 6P7

LACROIX QUEBEC INC. HUGH  
RUSSEL INC. HOME PRODUCTS DIV.  
Tel. (418) 837-4711

57 rue Commerciale  
G6V 6P7

Montréal

CAVERHILL LEARMONT & CO. LTD.  
Tel. (514) 842-8351

455 St. Peter St.  
H2Y 2M8

D.H. LISSER & CO. LTD.  
Tel. (514) 735-2294

8355 Montview  
H4P 2L9

J. PASCAL HARDWARE INC.  
Tel. (514) 866-5692

901 Bleury St.  
H2Z 1M5

RICHARDSON & BUREAU LTD.  
Tel. (514) 842-9591

432 Ste Helene  
H2Y 2K7

LA RIVIERE INC.  
Tel. (514) 731-7492

5475 rue Paré  
H4P 1R2

EDOUARD ROY & FILS LTEE  
Tel. (514) 524-7541

4115 Ontario St. E.  
H1V 1J8

Noranda

MARCEL BARIL LTEE  
Tel. (819) 764-3211

100 Real Caouette  
Parc Industriel  
J9X 5P5

Quebec

CANTIN & FILS LTEE  
Tel. (418) 525-7123

175 St-Vallier E.  
G1K 3N9

CHINIC INC.  
Tel. (418- 692-1330

55 rue St-Pierre  
G1K 7S6

SAMSON & FILION LTEE  
Tel. (418) 692-3971

343 St. Paul St.  
G1K 7H6

Sherbrooke

S. MITCHELL DIV. OF WESTBURNE  
IND ENTERPRISES LTD.

Box 490

St-Laurent

MONTEX INC.  
Tel. (514) 332-4140

2745 Duchesne  
H4R 1H9

Ste-Thérèse

ARROW TAPE INDUSTRIES, INC.

101 Blanchard St.

Ste-Foy

J.E. LEMIEUX

2375 rue Dalton

Trois-Rivières

P.A. GOUIN LTD.  
Tel. (819) 379-8551

4225 rue Saint-Joseph  
G7H 5H5

Victoriaville

AUGER & FILS LTEE  
Tel. (819) 752-5581

P.O. Box 70  
303 boul. Industriel, E.  
G6P 6S6

HARDWARE IMPORT CO. LTD.  
Tel. (819) 758-0565

303 boul. Industriel, E.  
P.O. Box 70  
G6P 6S6

QUINCAILLERIE LETOURNEAU LTEE  
Tel. (819) 752-5511

303 boul. Industriel, E.  
P.O. Box 70  
G6P 6S6

SODISCO INC.  
Tel. (819) 758-0562

303 boul. Industriel, E.

S A S K A T C H E W A NMoose Jaw

BLACKWOOD WHOLESALE HARDWARE  
LTD.  
Tel. (306) 692-2096

134-6 Manitoba St. W.  
P.O. Box 1297  
S6H 4P9

Prince Albert

FAYERMAN BROTHERS LTD.  
Tel. (306) 763-5331

1308, 1st Ave. E.  
6Sv 2B1

Saskatoon

FEDERATED CO-OPERATIVES LTD.  
Tel. (306) 244-3311

401, 22nd St. E.  
P.O. Box 1050  
S7K 3N9

STERLING DISTRIBUTORS(1963)LTD.  
Tel. (306) 652-3300

302 Wall St.  
P.O. Box 1508  
S7K 3R4

C A N A D I A N  
BUILDING SUPPLY AND HOME CENTRES

ACTION HARDWARE LTD. Tel. (416) 457-8521	115 West Dr. Bramalea, Ont. L6T 3T7
ALLONT LIMITED/BUILDALL Tel. (416) 486-5205	120 Eglinton Ave. E. Toronto, Ont.
BEAVER LUMBER CO. LTD. Tel. (416) 494-2161	245 Fairview Mall Dr. Willowdale, Ont. M2J 4T1
BOLD LUMBER LTD. Tel. (416) 661-5950	312 Dolomite Dr. Suite 208 Downsview, Ont. M3J 2N2
CALGARY CO-OPERATIVE ASSOCIATION LIMITED Tel. (403) 253-0345	8818 Macleod Trail Calgary, Alta. T2H )m5
CENTRES B.M.R. INC. Tel. (514) 527-9133	2375 de la Province Longueuil, Que. J4G 1G3
CHIMO CHARLIE CANADA LTD. Tel. (204) 728-8087	1040 Richmond Ave. Brandon, Man. R7A 1M6
COCHRANE-DUNLOP LIMITED Tel. (416) 865-0304	Royal Bank Plaza P.O. Box 50 Toronto, Ont. M5J 2J1
COLUMBIA LUMBER CO. LTD. Tel. (416) 698-2537	612 Victoria Park Ave. Toronto, Ont. M4E 3T7

CONKLIN LUMBER COMPANY LTD.  
Tel. (519) 672-0460

275 Dundas St. Suite 1601  
London, Ont.  
N6B 3L1

CO-OP ATLANTIC  
Tel. (506) 858-6000

123 Halifax St.  
P.O. Box 750  
Moncton, N.B.  
E1C 8N5

CROWN ZELLERBACH STORES LTD.  
Tel. (604) 294-6321

4664 Lougheed Highway, #200  
Burnaby, B.C.  
V5C 5T5

DISMAR INC.  
Tel. (514) 525-7511

1295 Newton St.  
Boucherville, Que.  
J4B 5H2

FALCON HARDWARE, DIV. OF  
MERCHANTS CONSOLIDATED  
Tel. (204) 224-1231

Box 1025, 630 Kernaghan Ave.  
Winnipeg, Man.  
R3C 2X3

FEDERATED CO-OPERATIVES LTD.  
Tel. (306) 244-3311

401, 22nd St. E.  
P.O. Box 1050  
Saskatoon, Sask.  
S7K 3M9

HALLIDAY CRAFTSMEN DIV. OF  
SUMNER HOLDINGS LIMITED  
Tel. (902) 895-5436

164 Arthur St.  
Truro, N.S.  
B2N 5E6

HANDY ANDY INC.  
Tel. (514) 735-1621

8300 Devonshire Rd.  
Montreal, Que.  
H4P 2K8

THE HART GROUP LTD  
Tel. (506) 672-3440

R.R. 7, South Bay  
Saint John, N.B.  
E2L 3W7

HOME HARDWARE STORES LIMITED  
Tel. (519) 664-2252

34 Henry St.  
St. Jacobs, Ont.  
N0B 2N0

HEMOCARE  
Tel. (416) 489-2424

110 Eglinton Ave. W.  
P.O. Box 309, Station K  
Toronto, Ont.  
M4P 2G8



D.H. HOWDEN & CO. LIMITED Tel. (519) 686-2200	635 Southdale Road London, Ont. N6A 4G8
IMPERIAL LUMBER CO. LTD. Tel. (403) 424-3131	10,018, 105 Street Edmonton, Alta. T5J 1C6
LACROIX (QUEBEC) INC. Tel. (418) 837-4711	57, rue Commerciale LEVIS, Québec G6V 6P7
LARKIN LUMBER CO. LIMITED Tel. (416) 792-2300	7950 Bramalea Road Mississauga, Ont. L5S 1B5
LINK HARDWARE CO. Tel. (403) 453-3651	14810, 131st Ave. Edmonton, Alta. T5J 2P8
LOCKHARTS LIMITED Tel. (506) 854-2260	111 Commercial St. Moncton, N.B. E1C 8N2
LUMBERKING LTD. Tel. (416) 741-9803	70 Toryork Dr. Weston, Ont. M9L 1X6
LUMBERLAND BUILDING MATERIALS LTD Tel. (604) 294-1431	5650 Loughheed Highway Burnaby, B.C. V5B 2Z8
MacCULLOCH HOME CENTRES LTD. Tel. (902) 453-1100	P.O. Box 5008 Armdale B3O 4M6
MACLEODS (DIVISION OF MACLEOD STEDMAN LTD.) Tel. (204) 453-9511	1530 Gamble Place Winnipeg, Man. R3T 1N6
MARCHANDS RO-NA INC. Tel. (514) 655-7610	1250 rue Nobel Boucherville, Quebec

MARSHALL WELLS LIMITED  
Tel. (204) 775-4511

1395 Ellice Ave.  
Winnipeg, Man.  
R3G 0G3

MDM HARDWARE WHOLESALERS INC.  
Tel. (514) 524-7511

1295 Newton St.  
Boucherville, Que.  
J4B 5H2

NORTH AMERICAN LUMBER LIMITED  
Tel. (204) 924-8121

205 Fort Street  
Winnipeg, Man.  
R3C 1E3

NOVA SCOTIA BUILDING SUPPLIES LTD  
Tel. (902) 861-2210

P.O. Box 10  
Waverley, N.S.  
NON 2S0

J. PASCAL LTD  
Tel. (514) 866-5692

901 Bleury St.  
Montreal, Que.  
H2Z 1M5

PEAVEY INDUSTRIES LIMITED  
Tel. (403) 346-8991

2420 - 50th Ave. Box 506  
Red Deer, Alta.  
T4N 5G1

PILON LTEE  
Tel. (819) 771-5841

5 Montclair Blvd.  
Hull, Quebec  
J8Y 2E3

QUEST DISTRIBUTORS LTD.  
(formerly INDEPENDENT RETAIL  
LUMBER YARDS  
Tel. (604) 596-1551

7846, 128th Street, Box 9010  
Surrey, B.C.  
V3T 4X7

REVELSTOKE COMPANIES LTD.  
Tel. (403) 266-6071

508, 24th Ave. SW, Box 2501  
Calgary, Alta  
T2P 2N2

TIM-BR-MARTS LTD.  
Tel. (204) 943-8437

412, 259 Portage Ave.  
Winnipeg, Man.  
R3B 2A9

TOTEM BUILDING SUPPLIES LTD. Tel. (403) 286-4666	6920, 29th Ave. NW. Calgary, Alta. T3B )B4
UNITED CO-OPERATIVES OF ONTARIO Tel. (416) 270-3560	151 City Centre Mississauga, Ont. L5A 3A4
VAL ROYAL LASALLE LTD. Tel. (514) 270-8111	159 Jean-Talon St. W. Montreal, Que. H2R 2X2
WCH DISTRIBUTORS LTD (Tel) 403) 252-8881	515 - 58th Ave. S.E. Calgary, Alta T2H 1Y4
WISEWAY OF CANADA LIMITED Tel. (519) 472-6661	R.R. 3
WALTER WOODS LIMITED Tel. (204) 589-5311	782 Main St. Winnipeg, Man. R3C 2S3

SOURCE: Building Supply & Home Centres  
Hardware Merchandising, May 1979

UNITED STATES

COMPANY PROFILES

This section contains information concerning a major group of publicly owned firms which are principal producers of portable electric and power hand tools in the United States.

BLACK & DECKER

Any consideration of the power tool industry must of necessity take into account the giant Black & Decker organization which has become a trend setter in that industry.

This is especially important to a Canadian perspective, since Black & Decker Canadian operation has been so exemplary in its world wide activities. It is a good example of sales growth, market share, global mandating, Canadian content and employment, return on investment and a favorable balance of trade.

A special profile has been prepared re: Black & Decker, not in acclaim for its performance but because its growth and development is a classic example of how a multinational corporation can develop and participate on terms beneficial to itself and its host country.

This is not to say other companies have not participated as well - only not to such a degree.

The comments presented in this profile concerning Black & Decker are rather lengthy.

It is considered worthwhile however because of the unique position Black & Decker holds in the international tool market.

Through the years of its development, it has shown leadership qualities in product design, manufacturing processes, marketing developments and international presence through subsidiary development and global mandating.

Because of the interest in global mandating, the details are presented in order to see to some extent, how it developed that way.

BLACK & DECKERA PROFILE

Black & Decker is the worlds leader in the development, manufacture and marketing of power tools and a successful new products company for other labor and time saving goods.

Black & Decker Company This company is considered to be the largest manufacturer of portable power tools. It produces power tools and labour saving devices for use in the home workshops and in the manufacturing industries.

The McCollough Division of Black & Decker produces gasoline powered chain saws and small gasoline engines.

For the year ended September 28, 1980, the net sales of this organization were:

<u>BILLIONS OF DOLLARS</u>	<u>% CHANGE</u>
\$1,438,299,000.	+19

Quoted from Black & Decker annual report 1980.

The overall sales break-down approximately as follows:

- consumer products, primarily for the home workshops  
in long care: approx. 69%
- the professional, including manufacturing industries  
construction, automotive services and maintenance  
trades: approx. 22%
- a product service, including parts and repairs,  
appros. 9%

Black & Decker conducts its operations through three geographic groups; the United States, Europe and the Pacific. (Canada is included in the Pacific group with Latin America, Australia, Japan and the Far East).

Sales by geographic group for 1980-79-78 of total:

	<u>1980</u>	<u>1979</u>	<u>1978</u>
Europe	47%	44%	40%
United States	38%	40%	43%
Pacific	15%	16%	17%

Sales by geographic group for 1980-79-78:

	<u>UNITED STATES</u>	<u>EUROPE</u>	<u>PACIFIC</u>
	[\$'000]		
1980	\$678,898	\$685,706	\$248,349
1979	555,371	540,519	223,569
1978	485,367	391,523	185,712

From Black & Decker annual report 1980.

It is very significant that the contribution to sales and profitability from the foreign market subsidiaries of Black & Decker are increasing in volume and in importance. Canada has played a particularly strong part in this development.



As a multinational corporation in this industry, black & Decker would certainly be the most advanced and progressive in developing new branch plant facilities in a host country.

In addition, they have established a global mandating program in Canada which can be held up as an exemplary model.

The corporation also conducts a world wide product service program with service centres for tool repair and replacement parts. In the U.S., this is carried out through approximately 95 company operated service stations and supported by a large number of authorized service centres which are operated by independent service dealers. Fine operations are conducted worldwide in approximately 175 Black & Decker owned service stations in Canada, the United Kingdom, France, Germany, Mexico, Italy and Australia.

For many years, Black & Decker sales performance have shown an average increase around 15% in sales and profitability. Only occasionally has performance got below these objectives.

A vigorous research and product development program has assisted Black & Decker in maintaining and expanding its position on the market place through the years. This has been coordinated through an overall program of plant

modernization and expansion, aggressive advertising and marketing promotions to maintain and increase market position. Tight management and control, together with good financial planning and budgetary control, have enabled the company to maintain its cost competitiveness and improve its profitability.

The now famous Workmate bench was first introduced in the Black & Decker product development organization in the United Kingdom; shortly thereafter, it was taken up by the Canadian company and made one of its principal products of production in the global mandating plan. Subsequently, as the market developed for this product in North America and other parts of the world, additional plants were added, in Ireland to serve the Common Market and more recently a plant was established in Maryland, on the eastern shore of the U.S., to support and service the domestic U.S. market. Meanwhile, the Canadian plant continues to flourish and produce this product for many markets of the world. In addition, there have been many accessories to go along with it; for example, the workmate, the gripmate, etc.. New versions of the workmate bench have been added and the product is a standard in its field.

The United Kingdom markets are supplied by products from plants in Harmondsworth, Maidenhead and Spennymoor, England. From these plants, certain products are also exported to other parts of the European market as well as other countries in the Commonwealth.

The Common Market is also served by plants in Italy, France and Germany, through manufacturers product lines serving the consumer product division, professional and industrial trade.

Re-investment plans have assisted substantially in the Black & Decker growth. It now spends worldwide over \$19 million per year for research and development and 40% of the sales in 1978, for example, were for products that did not even exist five years before.

Substantial sums are spent annually in capital expenditures for new plant equipment and modernization of every company sector. In 1977, the capital expenditure was \$29 million compared to a figure of just over \$28 million for the year preceding.

Capital expenditures were \$110 million in 1980, fifty per cent more than 1979 and the highest level in its history. Most of the expenditure was in machinery and equipment to expand capacity and reduce costs.

The Black & Decker Manufacturing Company, was founded in 1910 in Baltimore, Maryland, U.S.A., by Messrs. S. D. Black and A. G. Decker. Mr. Black was responsible for all marketing activities in the company and Mr. Decker was responsible for all engineering and manufacturing activities. This concept,

duality of emphasis on marketing and manufacturing, has continued to the present day and could be marked as a basic tenant and strength in the development of the Black & Decker organization throughout the world.

They were aware of the electrification of rural America and the vast opportunities that would develop with the use of electricity and the possibilities of the products for that new energy source. As a result, a ½" drill was developed and the Company pursued a long career developing and manufacturing tools for the industrial and automotive fields. At that time, the principal users of tools and equipment were the trades who were serving the industrial markets and the automotive after-markets.

The next major turning point in the power tool industry occurred after World War 11 in about 1947 when Black & Decker introduced to the world the first ½" do-it-yourself drill, the "U1".

During World War 11, Black & Decker, like many companies in the western world were heavily engaged in supplying war materials for the allies and it was during this period that Black & Decker founded a "post-war planning committee" to examine and plan for the future development of the Company as the war came to a close.

They very correctly perceived that there would be a development for greater use and requirement for power tools as the nation attempted to rebuild itself and supply the many goods and services that were missing in scarcity during wartime.

The low cost ¼" drill, the U1, was the brain child of this committee. It became the founding product of what was to be known as the "Home Utility" line. It was the beginning of a line homework shop portable electric power tools, which was ultimately to lead to the now famous "do-it-yourself" market.

From this simple ¼" drill, a line was ultimately expanded to include a small disc-sander and a small 6" saw. Success was immediate and spectacular. Through the years, the market developed to include millions of units sold, many new products developed and many producers supplying the general market place.

Among the other leaders in this do-it-yourself market were, of course, Black & Decker, Craftsman, Porter Cable (Rockwell), Skil, Stanley and many others.

While it is interesting to note the overall market trend and the huge sales growth achieved, it is equally, even more impressive, to observe the very important technological developments behind the scenes which made the products possible.

Because of new design concepts and the possibility of economies of scale in the burgeoning market place, many improvements in technique in manufacturing processes were now possible or could be conceived.

Some interesting examples follow.

Prior to the development of the U1 drill, most of the housings for electrical tools were manufactured in aluminum sand-castings with part of the production of higher volume units in die-castings, which were of more refined finish. With the advent of a large quantity possible in the consumer oriented market place, a revision of die-casting design specifications and manufacturing tolerance was possible. This allowed simplified integrated housings which could be produced off the die-casting machines as interchangeable parts. Later, these housing designs would be developed into the plastic and glass-filled nylon cases we now see in the market, (which assist in allowing double insulation specifications and further worker protections).

In motor design, there was a vast improvement in the insulation qualities of the magnet wire or motor wire, as used in both the windings of armature and fields. New insulation techniques in varnishing were possible which enabled the cost of the

product to be brought down. Techniques in motor design for the lamination punchings for both armature and fields were developed to include standardization and improvements which gave more power from smaller motors.

The specifications of the electrical properties of the steel were altered over the years to also improve the performance of the units.

The insulation of the electrical components of the unit for protection to the worker have always been a problem and the subsequent development of "trickle" varnishing processes in Europe have eventually found their way to North America and because of the huge volume, have been expanded and improved upon to the processes now available to such firms as Black & Decker and others.

Powered metal or the sintered metal process made possible the oil-lite type of bearings and other sintered metal parts which could be used in these tools, meeting their demands and lowering the cost of the product and the cost of production.

Switches were redesigned, modified and simplified to meet the new market potential. Black & Decker engineers even held patents for new designs.

The chucks for the drills were redesigned, cost reduced and lowered in price to the user.

Overall, the processes of product design, engineering, production planning and control, manufacturing, procurement, quality control, inventory control and distribution to the customer were all integrated and very finely tuned to a tightly controlled network for efficiency and lower costs.

There are other examples, too numerous to mention in a study of this nature, illustrating how this company in this industry has developed. It has provided new products in the market place to an expanding market, increasing capital investment and at the same time, increasing its employment capabilities. As the market and the product for that market have expanded, the company and the employees have benefited.

For this period of some thirty odd years from 1950 onward, all power tool manufacturers have been improving their productivity and their performance by continuing awareness to the market trends and development, their own product designs and the manufacturing processes and distribution processes necessary to get this product to the market place.

This has resulted in more tools and better tools, at lower prices relative to the other products offered to the market since the 1950s.



As the market has grown in international range and size, the supporting processes mentioned before have developed in complexity and sophistication. The question of which comes first "the chicken or the egg" no longer seems to apply. All of these factors are important and they all must be addressed together at the same time and with equal emphasis relatively one to the other.

Because the market base has expanded heavily, it has produced greater and greater competition, thus warranting more investments in new product design, new manufacturing processes and new distribution methods.

Black and Decker obviously, along with other world manufacturers, have seen the possibilities and invested very heavily in product design and development.

It is understood that Black & Decker now spends over 20 million dollars per year on research and development on a world wide basis, and perhaps 40% of its sales are achieved from products that did not even exist five years earlier. This is not a surprising fact when we look at other goods and services in the market place that were available but were not there a few years before.

In this kind of intensive, competitive market environment, Black & Decker has consistently and by good planning, improved

its market position to a degree where it can now claim over 60% of the global market in consumer power tool products. While it is less well established in the industrial and professional power tool market, it is a strong competitor in this group and can be expected to grow here as well.

For approximately the past 20 years, Black & Decker maintained an average growth rate in excess of 15% in gross sales. During this time, the sales have more than doubled on an average of every five years. Consolidated sales in 1968 were a mere \$190 million U.S., compared with a figure approaching \$1.5 billion U.S. at the present time. Of this figure, the Canadian company can be expected to produce approximately \$150 million in gross sales.

Together with sales, net earnings were also growing consistently during the same period, which not only reflected on the good management but on the growth of the industry as a whole, which was moving forward on all fronts during this time.

Black & Decker held and continued to improve its position with regularity, especially for the do-it-yourself product line.

Commencing during this period and continuing to the present time, Black & Decker has embarked on a broad program of acquisitions and plant expansion in many countries throughout

the tool industry. New companies were acquired: Master Power of the United States and Canada for pneumatic tools, Dewalt of Pennsylvania for U.S. and Canada for radial saws, and Star of Italy for a line of power tools compatible to the European Common Market. Expansion moved ahead aggressively in Common Market countries with new plants or additions in Italy, France, Germany and England; with other plant additions in the U.S., Canada and Australia. At the same time, developments were under way to establish sales companies with service facilities in all of the Common Market countries as well as Japan.

A Black & Decker product range is now marketed in over 45 countries, with a distribution to retail outlets in excess of 100,000. Marketing undertaken as a science continues to be one of the strong factors of the Black & Decker strategy. Aggressive marketing has led it into new markets and established a firm position for future development.

Black & Decker has become a household name, especially for the do-it-yourself product lines. Strong and continuous advertising and promotions at all media levels over a long period of time have impressed the Black & Decker name in the consumer's mind. Dealers are inclined to promote and stock the line because of the heavy store traffic the advertising will bring. Thus, it is that the good consistent advertising programs have assisted in a large measure to establish the good market position now enjoyed.

Black & Decker Canada

Black & Decker Canada was the first subsidiary of Black & Decker outside the United States. It was opened in 1921 in Montreal, Quebec. However, during the depression years of 1929, it was closed and not opened until several years later when a sales service and warehouse activity was opened in Toronto. In 1957, a plant site was purchased in Brockville, Ontario for the purpose of commencing a small manufacturing operation to support the growing Canadian market.

For several years, this activity grew with some difficulties, adding production hours, Canadian content and employment to support the sales in Canada until it reached the level of approximately 475 employees. Sales were then between 10 and 12 million dollars annually; however, the Canadian management realized the operation as it was constituted would never be on an even par competitively with its U.S. parent operation insofar as productivity and profitability were concerned. It continued to operate, more or less, as a "job shop" plant during this period, with relatively small production runs. In 1965-1966, the concept of global mandating came under very careful consideration and review by the Canadian management as to its possibility for solving the Canadian problem.

This program was eventually approved and implementation commenced in 1968 with one orbital sander which was then to be produced in Canada for the entire North American market. The plant was expanded, machinery and equipment were added and the

problem was solved. The process continues as other products have been added today and Black & Decker Canada now enjoys a very firm position in the power tool industry, not only in Canada, but in North America, and with a favorable balance of payments from the Canadian point of view.

This program of global mandating has reached around the world in the Black & Decker organization and many of the world markets today are served by plants which gained their support for manufacturing facilities not only from their own national market but from the possibility of export into others.

With this program, the Black & Decker Canadian company was able to grow at a faster rate than many of its sister subsidiaries. For example, the sales were approximately \$12.5 million in 1969 and will have risen to an estimated \$150 million in 1981. This is due in large part to the availability of the larger market place of North America and the world through global mandating. Product rationalization, research and development in plant and equipment, sound coordinated management and good cost control programs have also contributed.

As a result, during this period, employment rose from 450 to 1200 and the productivity for sales/employee rose from \$15,000 to an excess of \$100,000 for sales/employee.

This is an outstanding example of the type of programs that are required in Canada in the secondary industries to improve Canadian content, increase Canadian employment and improve the balance of trade.

Rationalization benefited the global mandating program as well. By shortening product lines, [i.e. reducing the number of products in a given line], it added to the sales volume for existing products presented to the market.

As the program of rationalization expanded, standardization of certain components within the products added to the volume of production. The manufacturing base for global mandating thus gained in two additional methods; a) rationalization of product lines, b) standardization of components.

The example presented by Black & Decker is an outstanding one of a multinational company participating to the fullest extent with the host country and contributing substantially to its market and economy.

DISSTON, INC.

The Company is one of the leading manufacturers of hand saws and related products in the U.S. and a leading producer of cordless electric lawn and garden tools.

The Company entered the cordless tool market in 1969.

(Black & Decker introduced the first cordless tool, a  $\frac{1}{4}$ " industrial drill in 1960. It was later discontinued because of problems with batteries). When Black & Decker, Rockwell International and Sunbeam entered the market in 1971, prices were substantially cut. Since then, the price situation has stabilized. During 1974, the Company introduced a cordless home electric screwdriver and a cordless electric sprayer.

For the industrial markets, Disston manufactures wood and metal cutting products, such as circular saws and handsaws. These products are used mainly in the pulp, lumber and basic metal industries.

Retailers handling the Company's products include hardware, department and discount stores. Industrial products are sold principally to industrial supply houses.

As of February 11, 1976, about 90% of the common shares of Disston, Inc. had been acquired by Viksa, Inc., owned by Sandvik Aktiebolag of Sweden. The Disston power tools are not well known in Canada.

EMERSON ELECTRIC COMPANY

Emerson Electric produces a broad range of electrical, electronic and related products for commercial, industrial, residential and government markets.

The Consumer Products category consists of various electrical equipment including power hand tools. Emerson is a producer of selected professional and hardware tools and service equipment. These products include certain kinds of wrenches, thread cutters, pipe cutters, reamers, vises, pipe and bolt threading machines, and certain sewer and drain cleaning equipment. Products are primarily sold under the 'Rigid' brand name. The principal markets for these professional tools and service equipment include plumbing, heating and air conditioning contractors, construction and maintenance companies, petroleum and gas producers and farm and home consumers.

Emerson also produces a variety of gas cutting and welding equipment, hobbyists tools, power chain saws and a specialized line of light-duty industrial bench power tools. In addition, a line of bench power tools for home do-it-yourself workshop use are produced for Sears, Roebuck & Company which retails them under the brand name 'Craftsman'.

The Company reported strong sales growth in power tools for



1977. In March 1977, Emerson acquired Weed Eater Inc. which makes grass weed trimmers and has annual sales of about \$40 million.

INGERSOLL-RAND COMPANY  
(Millers Falls Tool Company)

Ingersoll-Rand Company, considered to be the largest producer of air compressors, manufactures and markets a diverse array of machinery and is a major supplier of equipment for energy-related markets. The Company's principal products include - compressors, pumps, drilling equipment, hoists, turbines, air and electric power tools, mechanics' and carpenters' tools, pulp and paper machinery, tools for the construction, mining, process, utility and service industries, control systems, etc.

The Service Equipment Area includes Ingersoll-Rand's Tool Group which manufactures an extensive line of air, hand, cutting and electric tools for use in many industries such as the aircraft, automotive, construction and offshore drilling industries.

Ingersoll-Rand's air tools and hoists, products of the Tool and Hoist Division, was said to have gained increased acceptance through broadened distribution. Recent activities included a re-engineered line of pneumatic tools having higher performance and much lower manufacturing cost as a result of using new type metal-forming processes and materials.

The Miller Falls Division, manufacturer of electric, hand and cutting tools, also reported improved results for 1976. This

Division was said to be characterized by a continuing effort to attract the professional and industrial user.

The Tool Group as a whole was backed by a company marketing thrust to boost sales through independent distributors. The Company has over 5,000 distributors in the U.S. now using its display boards and related advertising and marketing support material to help sell Ingersoll-Rand tool products.

McGRAW-EDISON COMPANY

McGraw-Edison Company is a major producer and marketer of a wide variety of products which transmit, control and use electric energy. The Company's operations can be divided into three groups: consumer products, industrial equipment and utility equipment.

The consumer products group manufactures a number of products including electrical appliances, clocks and power driven hand tools. The Company acquired G.W. Murphy Industries in 1972, which became its portable electrical tools division.

The product line Power-Mate has been alternately successful with certain large promotional houses. Any significant market penetration has been limited by the success of the more popular lines such as Black & Decker, Skil and Craftsman.

MILWAUKEE-TOOL CORPORATION

Milwaukee Electric has been a producer of portable power tools since 1924, for the professional construction and industrial trades. This company has produced a wide variety of portable electric tools including drills, grinders, sanders, routers and hammers.

Its product was produced in manufacturing facilities in Brockville, Wisc., and Jackson, Miss. and distributed through 18 distribution centres in the United States and Canada.

Products were sold throughout the United States and Canada and overseas through more than 5,000 distributors serving principally the industrial construction portable electric tool market. The product is well known in Canada in these trades and favored by many professionals as a loyal following and is reasonably well advertised though not to a degree to equal the larger producers and the principal names in the industry.

Milwaukee was purchased by M. Star Corporation in January 1976.

ROCKWELL INTERNATIONAL

Rockwell International (formerly North American Rockwell) is a large diversified manufacturer engaged in the development, production and sale of products for division groups including aerospace, automotive, electronics, utility and industrial, and consumer.

Consumer operations includes the Admiral Group, manufacturer of major appliances and home entertainment products; and the Rockwell Power Tool Division, maker of consumer and industrial power tools.

The Power Tool Division (which was formerly Porter Cable) manufactures and sells through its own sales force and through distributors and agents, power tools for the construction, consumer and general industrial markets. It manufactures machine tools for both metal and woodworking, pneumatic tools and specialty tools for the general industrial market; portable electric lawn and garden and home workshop power tools for the consumer market; and portable electric power tools for the building trades.

The Rockwell industrial business segment improved its market share in both the stationary and air tool markets. A new line of double insulated professional portable electric tools was introduced.

The volume of Power Tool products for consumers increased substantially; there has been a significant gain in market share. Since 1972, power tool's consumer market share has tripled, with gains recorded in all major product categories. New consumer products introduced included three double insulated commercial duty builder's saws and a new consumer router, a high speed shaping tool for woodworking.

High priority is given to servicing power tool products and providing accessories and service parts. Since 1976, six new service centers were opened and another four relocated or expanded.

The Power Tool Division's international operations have continued their expansion, as marketing programs resulted in the penetration of the Japanese and Brazilian markets and increased sales in other importing countries. Power Tool began marketing for the first time in the United States, heavy duty woodworking machinery of Invicta, its Brazilian manufacturing facility. Canadian operations, which market the Beaver Stationary and Rockwell Portable Tool lines, have experienced strong market demand for both their imported and manufactured products.

SKIL CORPORATION

Skil is considered the second largest company specializing in the production of portable electric power tools. Sales are conducted through the industrial and consumer markets on a worldwide scale with a wide range of tools. At the present time, Skil Corporation maintains and operates ten manufacturing plants located in the United States, Canada, the Netherlands and Australia. Service is provided to customers through Company-owned service centers, 74 in the United States, 10 in Canada, 6 in the Far East, 8 in Latin America and 22 in Europe; and through 564 franchised service stations in metropolitan areas of the world. Major markets are thought to be the United States, Canada, Western Europe, Australia, New Zealand, Mexico, Venezuela and Japan, with growing markets in Central and South America, the Mideast and Eastern Europe.

The various product lines manufactured and distributed by Skil Corporation are sold under the 'Skil' and 'Skilsaw' trademarks. The product line includes portable electric and pneumatic circular saws, impact wrenches, hammers, electric rotary hammers, reciprocating saws, jigsaws, gasoline and electric powered chain saws, planes, routers, drills, screwdrivers, various types of sanders and grinders, metal shears, polishers and a full line of accessories for these and other tools. Over 350 different models are produced. About 50%



of the portable electric product line is classified as heavy-duty and 50% as light duty. The Company remarks that its circular saw has always been and still is the Company's best selling product.

Subsidiaries and Divisions also manufacture saw blades, electric motors, aluminum die-castings and plastic molded housings. Sales of consumer and industrial portable electric power tools accounted for about 81% of total volume in 1976, replacement parts and service revenues for 12% and other lines the remaining 7%.

Skil Tools are designed for the specific needs of the homeowner do-it-yourself consumer and the professional tradesman. In keeping with this, the Company claims that separate tools are designed for the consumer and industrial user since the needs of each group are different.

The Skil industrial line of tools, used by contractors, railroads, manufacturers, forester and utilities, is sold primarily through industrial and contractors' supply houses and specialty-type distributors. Lighter duty tools intended primarily for the home user or for the service and repair business are sold primarily through wholesalers to retailers for sale to the ultimate consumer. An automotive line of portable power tools to meet special requirements of the automotive service industry is sold in this specialized field primarily through automotive warehouse distributors, who, in turn, sell the tools to garages, fleets, service stations and repair shops.

SINGER COMPANY

Singer's operations are centered in consumer sewing machines, industrial sewing machines, various consumer and industrial products and Government related activities.

The Company's Power Tool and Floor Care Division is a leading producer of power tools. Singer supplies Sears Roebuck and Company with power hand tools for sale under the 'Craftsman' name. Sears is believed to be one of the major outlets for consumer portable electric power tools in the world. This relationship between Singer and Sears dates back to 1938 when Singer made its first 'Craftsman' electric portable tool for Sears.

The 'Craftsman' line consists of a wide variety of portable tools ranging from an economical  $\frac{1}{4}$  inch drill, used for small jobs around the house, to a 9 inch disc sander polisher designed for commercial uses such as auto body shops. The Company claims that all tools made for Sears are double-insulated to provide user safety, where adequate grounding is not available.

The major customer for Craftsman power tools has been the hobbyist and do-it-yourself homeowner who shops in retail outlets. Recently, the line has been expanded to include professional quality products.

1977 was the 50th anniversary of the 'Craftsman' name.

At one time, some of the power tools were fabricated and assembled in Canada. This operation was returned to the U.S. The management of the Canadian operation at Saint-Jean, Québec has shown an interest in reviewing this program along the lines of the Black & Decker global mandating approach.

STANLEY WORKS

Stanley Works, generally considered to be the largest manufacturer of hand tools (excluding automotive mechanics tools) in the world, produced both domestically and abroad an extensive line of tools for the construction, industrial and consumer markets and also manufacturers other household, builder and industrial products.

Stanley has manufacturing facilities for tools in the United States, Canada, England, France, Germany, Mexico, Guatemala, Colombia and Brazil.

The Company's operations can be classified into four lines of business, tools, builders products, industrial products and household products.

Stanley Tool operations manufacture a broad line of hand and garden tools along with a line of portable electric power tools and attachments, including drills, grinders, sanders and routers. The Company also produces portable air and hydraulic tools for industrial use. These tools are sold directly and through distributors.

Stanley attributes its success in tool sales to its emphasis placed on product design and features which appeal to the

booming do-it-yourself market. A new line of router bits and a new line of drills were introduced in 1976 which aided sales of electric tools. Stanley strengthened its position in the automotive and appliance industries with the introduction of a new innovative air tool design which was aimed at specific high output jobs.

THOR POWER TOOL COMPANY  
(Stewart Warner Corporation)

Thor Power Tool Company is owned by Stewart Warner Corporation. This organization is engaged in the design, manufacture and distribution of a highly diversified range of products. The operations are centered in eleven divisions, which manufacture at sixteen locations in the United States and Canada, and at three in Europe. Principal products include electronic and electrical systems products and components, mechanical systems and power tools.

Thor Power Tool Company is a manufacturer of both electric and air operated portable tools which are used in industrial plants of almost every kind, and by contractors on all types of construction projects, both below and above ground. The Power Tool Company has manufacturing facilities in the United States, West Germany, Italy, Mexico and the United Kingdom.

Thor industrial tools include impulse and impact wrenches, grinders, nut setters, screwdrivers, hoists and suspension balancers. Thor contractor tools include paving breakers, pumps, rock drills, concrete vibrators and trowels, earth tampers and compactors and chipping hammers.

New products have included an expanded line of torque and tension

controlled power wrenches, incorporating means for the electronic detection of fastener faults. This included a new printer with microprocessor control, to provide permanent records of the torques actually applied to fasteners. Also introduced was an expanded line of low noise concrete breakers and an improved line of long life concrete vibrators.

IMPORT PENETRATION TO U.S.

Imports of power driven hand tools continued to rise sharply during 1977, reaching just over \$190 million up 43% over the previous year. Imports as a percent of apparent consumption have also drastically increased over the past twelve years from about 2% in 1965 versus over 19% in 1977.

Imports of non-electric power hand tools represent over 76% of total imports and those of electric power hand tools account for nearly 24%.

Non-electric hand tool imports rose by 43% to over \$145 million in 1977. West Germany, followed by Japan and Canada are the largest exporters into the United States of these tools. West Germany represented 25% of these imports with Japan and Canada accounting for 27% and 18% respectively.

Imports of electric hand tools increased 46% in 1977 reaching \$45 million. The largest foreign competitors of electric tools are Switzerland, West Germany, Canada and Japan accounting for 29%, 24%, 22% and 19% respectively of total electric hand tool imports.

Tariffs on power driven hand tools have been cut in half since 1968. This decline in tariff charges has aided the strong growth of imports into the U.S.



U.S. IMPORT PENETRATION  
OF THE POWER HAND TOOL MARKET

(\$000's)

	<u>Value of</u> <u>Imports</u>	<u>%</u> <u>Change</u>	<u>Imports as</u> <u>a % of</u> <u>Apparent</u> <u>Consumption*</u>
1965	8,389	- %	2.3%
1966	12,049	43.6	2.8
1967	14,876	23.5	3.7
1968	20,786	39.7	4.8
1969	25,464	22.5	5.1
1970	33,384	31.1	6.7
1971	41,088	23.1	7.6
1972	59,050	43.7	9.7
1973	77,183	30.7	9.9
1974	116,170	50.5	14.0
1975	123,369	6.2	16.3
1976	132,963	7.8	15.8
1977	190,301	43.1	19.3

\* Apparent Consumption = Shipments + Imports - Exports

SOURCE: U.S. Department of Commerce

U.S. PERCENT DISTRIBUTION  
OF ELECTRIC POWER HAND TOOLS  
BY CONTRY OF ORIGIN

(\$000's)

	<u>1969</u>	<u>1974</u>	<u>1976</u>
<u>Total Imports</u>	8,519.2	31,731.5	30,838.5
<u>As a % of Total</u>			
Japan	33.1	20.7	19.0
West Germany	19.8	34.1	24.3
Canada	36.4	25.8	22.5
Sweden	1.2	0.1	-
United Kingdom	3.3	1.2	1.6
Switzerland	5.0	15.5	29.4

SOURCE: U.S. Department of Commerce  
 Calculated by Morton Research

U.S. GENERAL IMPORTS  
OF  
PRINCIPAL COMMODITIES, F.A.S.

Transaction Values

(\$000,000)

	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
Power tools, except metalworking machine tools	73	104	153	205	218	233	316

SOURCE: Overseas Business Report  
U.S. Foreign Trade Annual, 1971-1977  
U.S. Department of Commerce, June 1978

U.S. IMPORTS  
ELECTRIC POWER HAND TOOLS  
BY COUNTRY OF ORIGIN

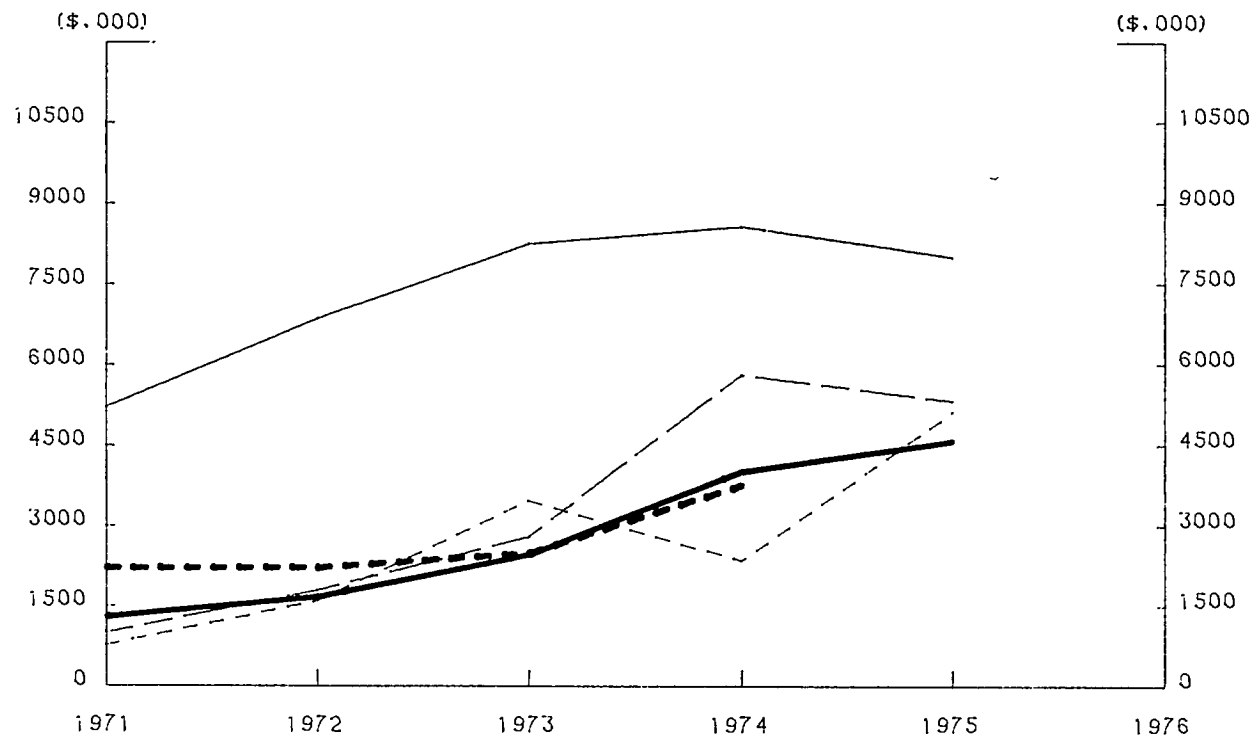
(\$000's)

	<u>Japan</u>	<u>West Germany</u>	<u>Canada</u>	<u>Sweden</u>	<u>United Kingdom</u>	<u>Switzerland</u>
1965	996	573	27	10	123	125
1966	2,092	786	35	*	307	230
1967	2,170	804	154	1	218	189
1968	2,734	944	2,530	4	239	318
1969	2,817	1,689	3,100	104	284	425
1970	2,901	2,046	5,125	18	214	611
1971	4,106	3,294	5,296	8	285	1,239
1972	5,553	4,388	6,781	8	484	1,909
1973	7,349	6,789	7,496	8,754	532	2,740
1974	6,580	10,824	8,193	27	392	4,910
1975	2,802	6,574	8,400	92	372	6,008
1976	5,870	7,509	6,929	-	490	9,077
1977	8,253	11,757	14,527	-	-	9,156

\* less than \$500

SOURCE: U.S. Department of Commerce

U.S. VALUE OF IMPORTS  
 INTO SELECTED FOREIGN COUNTRIES  
 ELECTRO-MECHANICAL POWER HAND TOOLS



\_\_\_\_\_ CANADA  
 - - - - - UNITED KINGDOM  
 - - - - - WEST GERMANY  
 \_\_\_\_\_ FRANCE  
 - - - - - JAPAN (INCLUDES IMPORTS FROM THE U.S.A. & PUERTO RICO)

SOURCE : UNITED NATIONS

U.S. SHARE OF IMPORTS  
INTO SELECTED FOREIGN COUNTRIES

(\$000's)

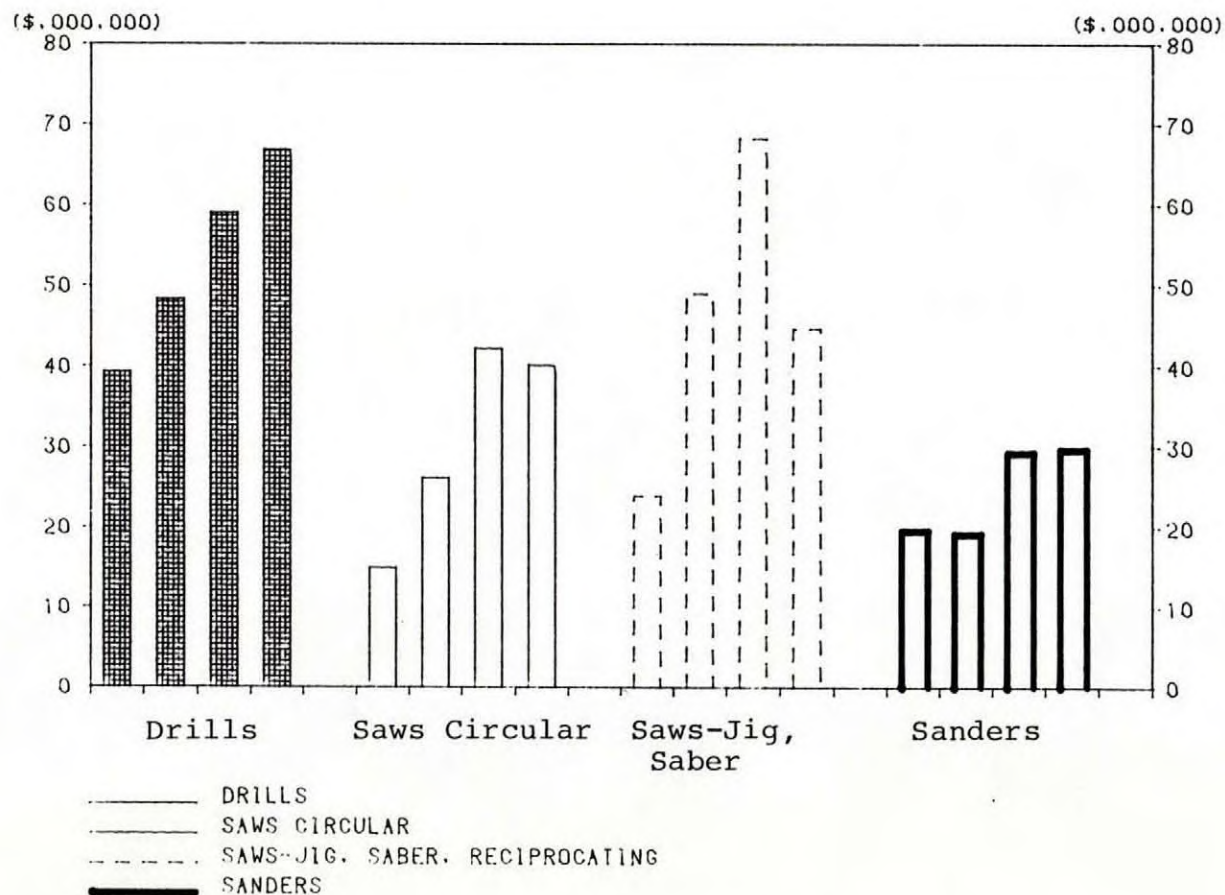
ELECTRO-MECHANICAL POWER HAND TOOLS

	<u>Year</u>	<u>Value</u>	<u>U.S. share of total imports into Country</u>
<u>Canada</u>	1971	\$5,213	91.1%
	1972	6,855	87.0
	1973	8,245	84.1
	1974	8,567	85.2
	1975	7,997	82.2
<u>United Kingdom</u>	1971	1,003	13.6
	1972	1,798	16.3
	1973	2,798	16.5
	1974	5,810	24.8
	1975	5,326	24.0
<u>West Germany</u>	1971	772	3.9
	1972	1,599	5.3
	1973	3,470	8.5
	1974	2,352	5.5
	1975	5,123	9.7
<u>France</u>	1971	1,306	5.3
	1972	1,682	5.3
	1973	2,474	5.1
	1974	4,026	7.1
	1975	4,592	7.7
<u>Australia</u>	1971	965	19.1
	1972	965	15.9
	1973	1,216	13.6
	1974	3,899	19.2
	1975	3,931	20.3
<u>Japan*</u>	1971	2,221	63.1
	1972	2,233	63.0
	1973	2,507	53.0
	1974	3,770	44.6

\* This includes imports from the U.S.A. & Puerto Rico taken from statistics issued by the United Nations.

...Continued

SHIPMENTS OF POWER-DRIVEN HAND TOOLS  
 BY PRODUCT TYPE  
 (1967, 1972, 1974, 1975)



SOURCE : U.S. DEPT. OF COMMERCE. CURRENT INDUSTRIAL REPORTS

ELECTRO-MECHANICAL POWER HAND TOOLS

(continued)

	<u>Year</u>	<u>Value</u>	<u>U.S. share of total imports into Country</u>
<u>Venezuela</u>	1971	\$1,138	75.4%
	1972	1,470	71.9
	1973	1,583	68.4
	1974	2,379	66.4
	1975	2,858	64.3
<u>Mexico</u>	1970	1,291	70.2
	1971	1,040	67.3
	1972	1,332	74.5
	1973	1,638	68.3
	1974	2,544	64.7
<u>Netherland</u>	1971	567	4.9
	1972	1,328	10.4
	1973	1,120	6.1
	1974	2,248	8.8
	1975	2,467	9.1
<u>Brazil</u>	1970	791	42.9
	1971	900	38.0
	1972	1,238	31.6
	1973	1,526	26.2
	1974	2,205	23.2
<u>Italy</u>	1971	572	4.9
	1972	631	5.4
	1973	922	4.9
	1974	1,562	6.1
	1975	1,176	5.7
<u>Belgium- Luxembourg</u>	1971	577	6.2
	1972	566	5.0
	1973	782	4.7
	1974	1,175	4.9
	1975	1,068	4.7
<u>South Africa</u>	1971	450	9.3
	1972	757	16.7
	1973	932	14.7
	1974	2,898	21.0
	1975	1,025	11.5

...Continued



ELECTRO-MECHANICAL POWER HAND TOOLS

(continued)

	<u>Year</u>	<u>Value</u>	<u>U.S. share of total imports into Country</u>
<u>Sweden</u>	1971	\$ 119	1.9%
	1972	103	1.6
	1973	200	2.0
	1974	566	3.9
	1975	895	4.5
<u>Colombia</u>	1971	269	54.1
	1972	458	66.4
	1973	318	52.1
	1974	515	63.0
	1975	636	68.1
<u>Israel</u>	1970	161	9.0
	1971	158	18.6
	1972	203	17.7
	1973	293	13.8
	1974	491	16.4
<u>Philippines Republic</u>	1971	148	43.9
	1972	235	55.3
	1973	189	44.3
	1974	221	38.0
	1975	352	31.1
<u>U.S.S.R.</u>	1971	18	2.8
	1972	36	4.3
	1973	50	4.5
	1974	88	8.8
	1975	72	3.7

NOTE: These values may not be congruent with those in other sections of the report. This is mainly due to the differences in the classification categories between the individual sources used.

SOURCE: U.S. Department of Commerce,  
Bureau of International Economic Policy & Research

THE U.S. EXPORT MARKET

Canada has been and remains the leading export market in all product groups of power tools. Other important export markets include - West Germany, the United Kingdom, the Netherlands, Brazil and Japan. These top six export markets accounted for nearly 42 of our total exports.

Of total exports, Canada received in 1976 -

- 42% of portable electric drills
- 40% of other portable electric hand tools
- 39% of portable pneumatic drills, screwdrivers and nutrunners
- 42% of pneumatic hand held wrenches
- 25% of pneumatic grinders, polishers and sanders
- 17% of other portable pneumatic hand tools, including percussion tools
- 13% of other power operated hand tools
- 20% of parts and attachments for non-electric power hand tools.

Portable electric drill exports increased 2% in 1977 while concurrently portable pneumatic drills, screwdrivers and nutrunners rose by 15%. Canada, West Germany, the United Kingdom and Japan received the largest share of these exports. Portable pneumatic grinders, polishers and sanders exports fell 13% last year to \$2 million with most of these exports going to Canada, Mexico, West Germany and the United Kingdom. Exports of pneumatic hand held wrenches were up by 28% in 1977 to \$7 million. The largest share of these exports went to Canada, West Germany, the Netherlands and the United Kingdom.

The United States' share of imports into OECD countries remains strong just as it has been in the past. Imports entering Canada accounts for largest share of U.S. exports to any country. This share is estimated at just over 80% in both the electric and pneumatic hand tool categories. According to United Nation's statistics, world production of power hand tools is on the rise.

Certain companies due to the growth potention in these export markets, have begun worldwide distribution in addition to operating facilities overseas for the production of power hand tools.

U.S. EXPORT MARKETPOWER HAND TOOLS

(\$000's)

	<u>Total</u> <u>Exports</u>	<u>As a % of Total</u> <u>Shipments</u>
1965	50,219	12.3%
1966	52,399	11.2
1967	52,821	12.1
1968	54,800	11.6
1969	57,449	10.8
1970	59,136	11.3
1971	58,341	10.5
1972	72,737	11.7
1973	99,029	12.4
1974	137,437	16.2
1975	138,441	17.9
1976	167,793	19.1
1977	192,013	19.4

SOURCE: U.S. Department of Commerce

PERCENT DISTRIBUTION OF EXPORTS

OF ELECTRIC POWER HAND TOOLS

BY COUNTRY OF DESTINATION

(\$000's)

	<u>Portable electric drills, including parts</u>				<u>Other portable electric hand tools, including parts</u>		
	<u>1969</u>	<u>1974</u>	<u>1976</u>		<u>1969</u>	<u>1974</u>	<u>1976</u>
TOTAL EXPORTS	5,920.4	9,469.1	12,407.3	TOTAL EXPORTS	17,628.5	61,012.1	79,419.4
<u>As a % of total</u>				<u>As a % of total</u>			
Canada	36.6	28.0	42.0	Canada	40.6	36.6	40.0
Brazil	8.3	14.7	1.4	United Kingdom	40.9	8.4	3.8
Rep. of S.Africa	6.4	10.7	-	Netherlands	6.5	6.0	5.1
Australia	-	4.8	9.5	Japan	5.6	5.8	3.7
Venezuela	7.4	4.2	9.9	Mexico	6.7	5.7	3.8
United Kingdom	1.0	3.7	-	Australia	3.0	4.9	6.9
Japan	2.3	3.0	2.0	France	2.2	3.4	5.0
Colombia	2.4	2.2	1.0	Venezuela	4.3	3.3	1.7
Israel	0.2	1.9	1.1	Rep. of S.Africa	3.9	3.4	1.2
Mexico	4.5	2.3	2.3	West Germany	2.9	2.6	5.5
Belgium	1.5	1.3	-				

SOURCE: U.S. Department of Commerce  
Calculated by Morton Research

U.S. EXPORTS OF ELECTRIC POWER HAND TOOLS

BY MAJOR COUNTRY OF DESTINATION

(\$000's)

1) Portable electric drills, including parts

	<u>Canada</u>	<u>Brazil</u>	<u>South Africa</u>	<u>Australia</u>	<u>Venezuela</u>	<u>United Kingdom</u>	<u>Japan</u>	<u>Colombia</u>	<u>Israel</u>	<u>Mexico</u>	<u>Belgium</u>
1965	2,252.8	99.9	169.0	39.6	239.5	83.9	41.0	-	86.3	177.7	118.7
1966	2,486.8	264.1	226.8	12.3	261.8	26.8	65.9	25.4	66.2	376.6	86.5
1967	2,022.6	205.0	195.3	25.3	221.2	25.4	102.6	65.5	58.8	332.3	78.8
1968	3,142.2	321.0	191.4	15.5	228.2	16.4	40.2	135.2	50.7	196.7	35.5
1969	3,636.0	248.6	212.1	20.2	246.2	29.7	92.6	141.0	12.7	135.8	87.4
1970	2,478.8	297.4	143.9	-	209.3	33.0	115.3	161.3	-	115.9	18.5
1971	3,522.6	434.4	83.6	25.4	172.9	27.6	48.0	154.8	-	119.2	-
1972	3,832.0	607.4	168.4	-	493.0	63.3	91.8	189.4	13.8	196.9	56.1
1973	4,680.1	477.8	329.9	48.0	160.5	158.9	251.9	154.2	16.8	130.8	78.8
1974	3,468.3	1,106.9	793.6	415.7	372.0	335.2	262.4	204.2	183.5	180.9	123.7
1975	4,277.4	801.2	-	287.7	753.8	505.7	259.9	216.8	146.8	259.5	-
1976	5,215.0	173.6	-	1,178.2	1,229.0	-	248.9	119.7	137.1	282.8	-
1977	5,278.2	85.8	-	51.4	1,384.3	-	8,502.9	-	-	170.0	-

(continued)

(continued)

(\$000's)

2) Other portable electric hand tools, NEC including parts and attachments

	<u>Canada</u>	<u>United Kingdom</u>	<u>Nether lands</u>	<u>Japan</u>	<u>Mexico</u>	<u>Australia</u>	<u>France</u>	<u>Venezuela</u>	<u>South Africa</u>	<u>West Germany</u>
1965	5,302.3	1,334.6	1,538.2	814.0	1,129.6	535.4	1,106.6	614.0	667.3	1,080.4
1966	6,471.5	973.0	1,392.7	649.0	1,047.7	621.9	725.0	672.2	625.3	1,141.2
1967	7,101.3	865.6	1,903.9	1,057.9	575.5	921.2	829.0	662.1	744.7	877.8
1968	6,574.6	476.9	1,147.5	936.5	1,373.0	617.3	367.0	656.1	699.2	476.7
1969	7,154.2	721.3	1,140.6	985.4	1,177.3	521.3	379.9	759.4	687.0	505.2
1970	5,824.7	646.3	946.2	1,550.6	1,748.4	654.0	355.7	758.4	658.2	714.0
1971	7,927.4	975.2	1,049.6	1,470.6	1,102.6	697.3	328.0	965.3	366.3	833.5
1972	11,148.1	1,606.6	2,054.3	1,424.9	1,157.4	842.0	451.0	974.7	555.1	1,396.4
1973	17,191.0	2,535.9	2,116.0	1,976.8	1,620.2	1,445.8	748.0	1,394.9	700.8	1,902.6
1974	22,306.4	5,120.8	3,675.4	3,521.9	3,486.4	2,979.6	2,056.5	1,991.2	2,080.4	1,587.5
1975	21,260.9	3,205.5	4,236.2	3,646.3	2,743.8	3,592.7	2,210.5	2,070.6	834.8	1,524.6
1976	10,787.8	2,986.2	4,017.2	2,961.6	3,027.6	5,481.6	3,940.2	1,388.6	876.2	4,326.8

SOURCE: U.S. Department of Commerce

U.S. EXPORTS OF ELECTRIC POWER TOOLS BY TYPE

(\$000)

	<u>Portable electric drills</u>			<u>Parts portable electric drills-value</u>	<u>Other portable electric hand tools</u>			<u>Parts and attachments for other power hand tools-value</u>
	<u>Quantity (000)</u>	<u>Value</u>	<u>Value per unit</u>		<u>Quantity (000)</u>	<u>Value</u>	<u>value per unit</u>	
1965	187.2	\$3,761.4	\$20.10	\$3,153.3				-----\$17,842.2-----
1966	238.2	3,966.9	16.66	2,969.0				----- 18,076.1-----
1967	167.7	2,800.5	16.70	2,133.6				----- 19,366.2-----
1968	154.0	2,750.3	17.86	2,584.1				----- 16,889.9-----
1969	162.8	2,997.2	18.41	2,923.2				----- 17,628.5-----
1970	144.9	2,566.2	17.71	2,143.4				----- 17,302.0-----
1971	168.7	2,702.6	16.02	3,218.0				----- 20,039.6-----
1972	273.5	4,213.5	15.41	3,014.0	1,321.6	\$20,513.4	\$15.52	\$ 6,843.5
1973	329.2	5,262.1	15.99	2,523.0	2,036.6	29,757.4	14.61	10,135.0
1974	543.5	7,389.8	13.60	2,079.3	2,945.7	47,215.3	16.03	13,796.8
1975	568.2	9,361.9	16.48	1,746.4	2,680.3	47,572.7	17.75	12,142.5
1976	596.0	10,512.0	17.64	1,895.3	3,304.3	60,846.8	18.41	18,572.6
1977	704.1	10,758.2	15.28	1,548.5	3,526.7	72,263.7	20.48	21,459.4

SOURCE: U.S. Dept. of Commerce



U.S. EXPORTS  
OF  
ELECTRIC & PNEUMATIC POWERED HAND TOOLS

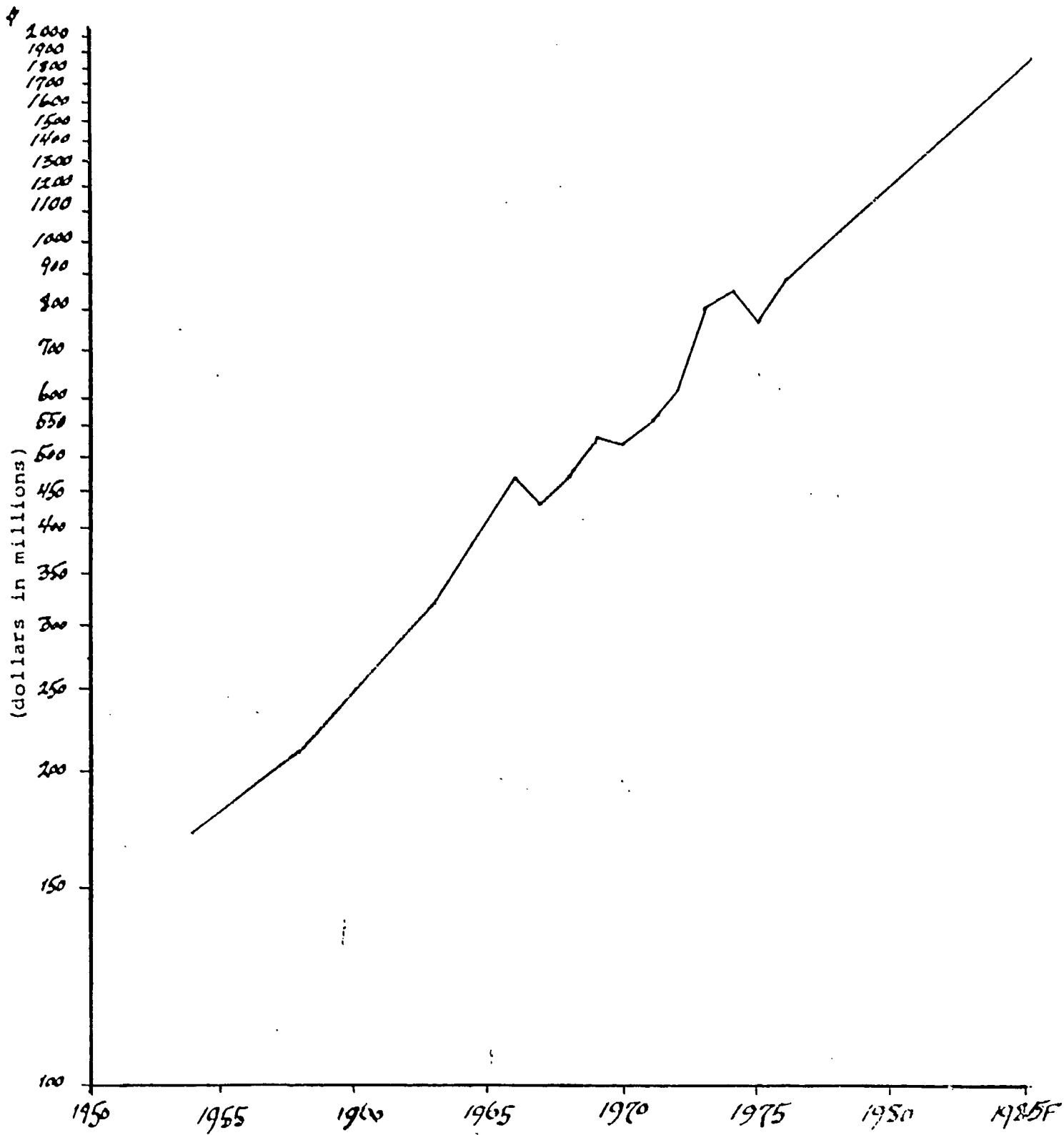
(\$000)

	<u>Electric powered hand tools</u>	<u>As % of total exports</u>	<u>Pneumatic powered hand tools</u>	<u>As % of total exports</u>	<u>Pneumatic powered hand tools</u>	<u>As % of total exports</u>
1965	\$24,739	49.3%	\$17,506	34.9%	\$ 7,974	15.9%
1966	25,012	47.7	18,552	35.3	8,835	16.9
1967	24,300	46.0	18,253	34.6	10,268	19.4
1968	22,224	40.6	19,938	36.4	12,637	23.1
1969	23,549	41.0	20,599	35.9	13,301	23.2
1970	22,012	37.2	22,906	38.7	14,218	24.0
1971	25,960	44.5	19,361	33.2	13,020	22.3
1972	34,584	47.5	23,855	32.8	14,303	19.7
1973	47,678	48.1	31,645	32.0	19,707	19.9
1974	70,481	51.3	35,668	26.0	31,288	22.8
1975	70,824	51.2	32,301	23.3	35,317	25.5
1976	91,827	54.7	40,209	24.0	35,758	21.3
1977	105,628	55.0	44,726	23.3	41,621	21.7

SOURCE: U.S. Department of Commerce

U.S. POWER HAND TOOL MARKET

TOTAL SALES LINE



THE U.S. POWER HAND TOOL MARKET

(Dollars in Millions)

	<u>Shipments of Power Hand Tools</u>	<u>Annual % Change</u>
1947	\$ 112.2	-
1954	170.5	6.2% (Compound Avg.)
1958	210.6	5.4
1963	319.9	8.7
1964	364.8	14.0
1965	407.9	11.8
1966	469.6	15.1
1967	436.0	-7.2
1968	470.4	7.9
1969	532.4	13.2
1970	522.8	-1.8
1971	554.5	6.1
1972	622.9	12.3
1973	801.2	28.6
1974	849.1	6.0
1975	771.9	-9.1
1976	877.6	13.7
1977	989.9	12.8
1978	1,089.9	10.1
1979	1,175.	10.
1980	1,250.	10.
1981	1,350. Est.	10. Est.
1985 Forecast	1,865.0	7.9

SOURCE: U.S. Department of Commerce,  
Bureau of the Census

U.S. GENERAL STATISTICS  
DIRECTLY REPORTED EXPORTS  
AND  
EXPORT-RELATED EMPLOYMENT FOR THE UNITED STATES  
3546 - POWER DRIVEN HAND TOOLS

	<u>1975</u>	<u>1976</u>
<u>Value of shipments</u>		
Total (\$000,000)		1,140.7*
Directly reported exports (\$000,000)		115.3**
<u>Manufacturing employment</u>		
Total (1,000)		22.0***
Related to directly reported exports (1,000)		2.2****
<u>Relative standard error of estimate:</u>		
*	2%	
**	1%	
***	2%	
****	1%	

SOURCE: Annual Survey of Manufacturers, 1975-1976  
 U.S. Department of Commerce  
 Bureau of the Census, May 1979

U.S. GENERAL STATISTICS  
QUANTITY AND COST OF PURCHASES FUELS  
AND  
ELECTRIC ENERGY USED FOR HEAT AND POWER  
3546 - POWER DRIVEN HANDTOOLS

	<u>1975</u>	<u>1976</u>
<u>Total new expenditures</u>	22.3	21.1*
<u>New structures and additions to plant</u>	6.3	1.1**
<u>New machinery and equipment</u>	16.0	20.0***

Standard error of change:      \*    4%  
    \*\*    2%  
    \*\*\* 4%

SOURCE: Annual Survey of Manufacturers, 1975-1976  
 U.S. Department of Commerce  
 Bureau of the Census, May 1979

U.S. GENERAL STATISTICSVALUE OF SHIPMENTS3546 - POWER DRIVEN HANDTOOLS

	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>
Power driven handtools/ <u>all items:-----</u>	622.9	801.2	849.1	771.9	877.6*
Power-driven handtools, electric	386.9	514.0	570.4	493.9	569.6**

Standard error: \* 3%  
\*\* 2%

SOURCE: Annual Survey of Manufacturers, 1975-1976  
U.S. Department of Commerce  
Bureau of the Census, May 1979

U.S. GENERAL STATISTICS3546 - POWER DRIVEN HANDTOOLS

	<u>1975</u>	<u>1976</u>
<u>All employees</u>		
Number (1,000)	21.2	22.0*
Payroll (\$000,000)	219.9	261.8
<u>Production workers</u>		
Number (1,000)	14.7	15.9
Plant hours (000)	27.4	30.4
Wages (\$000,000)	136.8	165.6
<u>Value added by manufacture</u> (\$000,000)	603.8	702.5**
<u>Cost of materials</u> (\$000,000)	418.1	452.7
<u>Value of industry shipments</u> (\$000,000)	1,059.2	1,140.7
<u>Capital expenditures, new</u> (\$000,000)	22.3	21.1***
<u>End of year inventories</u> (\$000,000)	271.4	262.5

Standard error of estimate:

*	4%
**	3%
***	4%

SOURCE: Annual Survey of Manufacturers, 1975-1976  
U.S. Department of Commerce  
Bureau of the Census, May 1979

U.S. GENERAL STATISTICS  
ON EMPLOYMENT AND LABOR COST  
3546 - POWER DRIVEN HANDTOOLS

	<u>1975</u>	<u>1976</u>
<u>Employees</u> (1,000)	21.2	22.0
<u>Labor costs</u> (\$000,000)		
Total	261.8	312.4
Payroll	219.9	261.8
Social security and other legally required payments	16.5	19.2*
Employer payments for other programs	25.4	31.4**

Standard error of change:   \*   4%  
                                  \*\*  3%

SOURCE: Annual Survey of Manufacturers, 1975-1976  
 U.S. Department of Commerce  
 Bureau of the Census, May 1979



U.S. GENERAL STATISTICSGROSS BOOK VALUEOFDEPRECIABLE ASSETS AND VALUE OF SHIPMENTSFOR OPERATING MANUFACTURING ESTABLISHMENTS3546 - POWER DRIVEN HANDTOOLS

	(\$000,000)	
	<u>1975</u>	<u>1976</u>
Gross book value of depreciable assets/ end of year -----		
Total	274.7	284.8*
Structures and buildings	71.8	71.3**
Machinery and equipment	203.0	213.5***
<u>Value of shipments</u>	1,059.2	1,140.7****

Standard error of change: \*     3%  
                                   \*\*    7%  
                                   \*\*\*   2%  
                                   \*\*\*\*  3%

SOURCE: Annual Survey of Manufacturers, 1975-1976  
 U.S. Department of Commerce  
 Bureau of the Census, May 1979

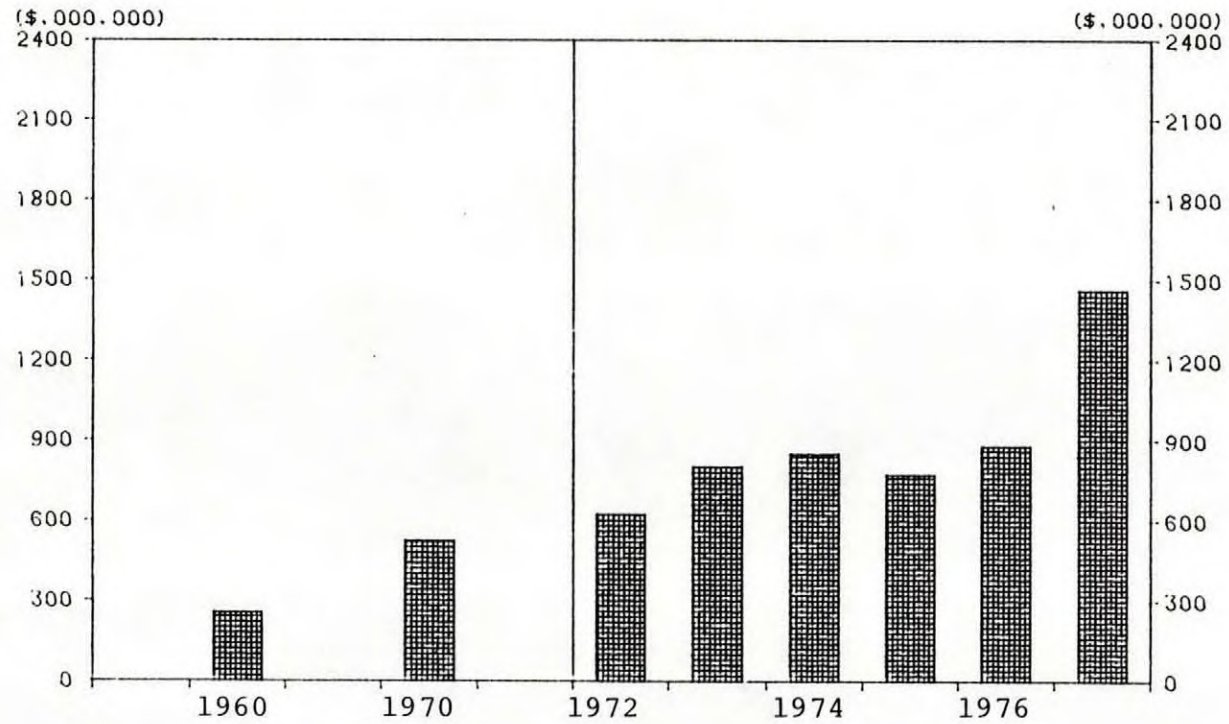
U.S. GENERAL STATISTICS  
RENTAL PAYMENTS  
FOR  
STRUCTURES AND MACHINERY AND EQUIPMENT  
FOR OPERATING MANUFACTURING ESTABLISHMENTS  
3546 - POWER DRIVEN HANDTOOLS

	(\$000,000)	
	1975	1976
<u>Total</u>	8.0	8.1*
<u>Structures and buildings</u>	3.4	2.9**
<u>Machinery and equipment</u>	4.6	5.1***

Standard error of change:   \*   10%  
                                  \*\*   16%  
                                  \*\*\*  7\*

SOURCE: Annual Survey of Manufacturers, 1975-1976  
 U.S. Department of Commerce  
 Bureau of the Census, May 1979

U.S. VALUE OF SHIPMENTS  
POWER-DRIVEN HAND TOOLS  
(1960, 1970, 1972-1977)



SOURCE : U.S. BUREAU OF THE CENSUS.  
CURRENT INDUSTRIAL REPORTS

U.S. VALUE OF SHIPMENTSPOWER-DRIVEN HAND TOOLS(\$000,000)

1960	\$254
1970	523
1972	623
1973	801
1974	849
1975	772
1976	878
1977	1,461

SOURCE: U.S. Bureau of the Census,  
Current Industrial Reports

U.S. GROWTH OF ELECTRIC POWERED HAND TOOLS BY PRODUCT TYPE\*

	1972 Value of ship- ment	1967-72 annual change	Value of ship- ment	1972-74 annual change	Value of ship- ment	1974-75 annual change	Annual change from 1963-1975
<u>Total</u>	\$386.9	6.9%	\$549.8	19.8	\$508.9	-7.4%	8.4%
Drills	87.5	6.8	111.0	12.7	113.0	1.8	7.6
Saws-circular	70.7	12.3	74.5	2.6	69.0	-7.4	7.2
Saws-jig, saber & reciprocating	49.0	15.4	68.2	17.9	44.6	-34.6	7.7
Screwdrivers & nutrunners	13.8	24.0	10.9	-10.9	6.5	-40.4	10.7
Hammers	9.9	-0.4	15.9	26.0	12.7	-20.1	5.8
Impact wrenches	10.5	8.7	10.7	0.9	9.0	-15.9	5.9
Planers & routers	14.9	14.4	27.0	35.0	26.7	-1.5	15.1
Other hand tools, inc. shears & nibblers	44.8	16.9	37.3	-8.7	34.9	-6.4	11.0
Grinders & polishers	25.9	15.6	40.4	25.0	43.2	6.9	10.6
Sanders	19.2	-0.4	29.3	24.0	29.7	1.4	7.5
Parts & attachments	40.7	-3.7	124.4	174.8	119.2	-4.2	8.3

\* - Compound annual growth rate

SOURCE: U.S. Dept. of Commerce  
Calculated by Morton Research

U.S. ELECTRIC POWERED HAND TOOL PRODUCT MIX

(\$000,000)

	<u>1972</u>		<u>1974</u>		<u>1975</u>	
	<u>Ship-</u> <u>ment</u>	<u>% of</u> <u>total</u>	<u>Ship-</u> <u>ment</u>	<u>% of</u> <u>total</u>	<u>Ship-</u> <u>ment</u>	<u>% of</u> <u>total</u>
<u>Total</u>	\$386.9	100.0%	\$549.8	100.0%	\$508.9	100.0%
Parts & attachments	40.7	10.5	124.4	22.6	199.2	23.4
Drills	87.5	22.6	111.0	20.2	113.0	22.0
Saws-circular	70.7	18.3	74.5	13.6	69.0	13.6
Saws-jig, saber & reciprocating	49.0	12.7	68.2	12.4	44.6	8.8
Grinders & polishers	25.9	6.7	40.4	7.3	43.2	8.5
Other hand tools, inc. shears & nibblers	44.8	6.7	37.3	6.8	34.9	6.9
Sanders	19.2	5.0	29.3	5.3	29.7	5.8
Planers & routers	14.9	3.9	27.1	4.9	26.7	5.2
Hammers	9.9	2.6	15.9	2.9	12.7	2.5
Impact wrenches	10.5	2.7	10.7	1.9	9.0	1.8
Screwdrivers & nutrunners	13.8	3.6	10.9	2.0	6.5	1.3

SOURCE: U.S. Dept. of Commerce, Current Industrial Reports  
Calculated by Morton Research

U.S. STRUCTURE OF THE POWER HAND TOOL INDUSTRY

(\$000,000)

	Number of plants	<u>All employees</u>		<u>Production workers</u>			<u>Cost of materials</u>	<u>Value added</u>	<u>Value of shipments*</u>	<u>New capital expend- itures</u>
		<u>Number (000)</u>	<u>Payroll</u>	<u>Number (000)</u>	<u>Man-hours (000,000)</u>	<u>Wages</u>				
1958	82	12.6	\$ 63.0	8.9	16.7	\$ 38.3	\$ 78.2	\$136.6	\$221.4	\$ 8.4
1963	85	17.4	100.8	12.8	25.8	64.7	133.9	232.4	365.4	6.1
1967	69	22.5	143.3	16.2	32.0	91.7	194.5	326.0	506.3	21.2
1972	88	23.1	202.3	16.9	32.9	124.2	302.7	434.5	730.5	20.3
1973	-	26.5	249.0	18.8	37.3	159.8	397.1	562.0	921.4	25.6
1974	-	26.1	252.7	19.3	37.4	167.3	436.5	721.6	1,119.6	35.5
1975	-	21.2	219.9	14.7	27.4	136.8	418.1	610.2	1,059.2	22.3

\* - Includes shipments of power hand tools, as well as other products manufactured by power hand tool manufacturers.

SOURCE: U.S. Dept. of Commerce  
Bureau of the Census

U.S. OPERATING RATIOS

	<u>Payroll cost as a % of sales</u>			<u>Material costs as a % of sales</u>			<u>Operating margins</u>		
	<u>U.S. Manufacturing average</u>	<u>Hand tools</u>	<u>Power hand tools</u>	<u>U.S. Manufacturing average</u>	<u>Hand tools</u>	<u>Power hand tools</u>	<u>U.S. Manufacturing average</u>	<u>Hand tools</u>	<u>Power hand tools</u>
1958	-	32.4%	28.4%	-	38.1%	35.3%	-	29.5%	36.3
1963	23.8%	30.8	27.6	54.6%	36.8	36.6	21.6%	32.4	35.8
1967	22.2	28.5	28.3	53.6	39.8	38.4	24.2	31.7	33.3
1972	21.1	28.0	27.7	53.8	37.9	41.4	25.1	34.1	30.9
1973	20.4	28.1	27.0	54.6	39.6	43.1	25.0	32.3	29.9
1974	18.7	28.7	22.6	57.2	41.9	39.0	24.1	29.4	38.4
1975	18.3	26.7	20.8	57.4	39.9	39.5	24.3	33.4	39.7

SOURCE: U.S. Dept. of Commerce  
Calculated by Morton Research



U.S. VALUE ADDED IN PRODUCTIONOPERATING DATA

	<u>Payroll</u> <u>as a %</u> <u>of value</u> <u>added</u>	<u>Value added per</u> <u>man-hour of</u> <u>production workers</u>	<u>Ratio of value added</u> <u>per man-hour of</u> <u>production workers</u> <u>to wages per man-hour</u>
1958	46.1%	\$ 8.18	3.57
1963	43.4	9.01	3.59
1967	44.0	10.19	3.55
1972	46.6	13.21	3.49
1973	44.3	15.07	3.52
1974	35.0	19.29	4.32
1975	36.0	22.27	4.46

SOURCE: U.S. Department of Commerce  
Bureau of the Census

U.S. CONCENTRATION RATIOS  
OF  
POWER DRIVEN HAND TOOLS BY TYPE - 1972

(\$000,000)

	Value of product <u>shipments</u>	<u>% of shipments accounted for by the:</u>			
		<u>4</u> largest <u>companies</u>	<u>8</u> largest <u>companies</u>	<u>20</u> largest <u>companies</u>	<u>50</u> largest <u>companies</u>
Electric-power hand tools	\$389.6	61%	84%	98%	100%
Pneumatic & powder actuated hand tools	217.9	51	69	92	100
Power driven hand tools, N.S.K.	18.1	(X)	(X)	(X)	(X)

N.S.K.: Not Specified by Kind

(X): Not Applicable

SOURCE: Census of Manufacturers

U.S. CONCENTRATION RATIOPOWER DRIVEN HAND TOOLS(\$000,000)

	<u>Value of product shipments*</u>	<u>% of shipments accounted for by the:</u>			
		<u>4 largest companies</u>	<u>8 largest companies</u>	<u>20 largest companies</u>	<u>50 largest companies</u>
1954	\$170.5	40%	59%	82%	NA
1958	210.6	39	59	82	97%
1963	319.9	43	64	87	97
1967	436.0	47	67	89	97
1972	622.9	41	65	88	97

\* These shipments include only power driven hand tools

NA: Not Available

SOURCE: U.S. Department of Commerce  
Bureau of the Census

U.S. GENERAL STATISTICS  
QUANTITY AND COST OF PURCHASES FUELS  
AND  
ELECTRIC ENERGY USED FOR HEAT AND POWER  
3546 - POWER DRIVEN HANDTOOLS

	<u>1975</u>	<u>1976</u>
<u>Total new expenditures</u>	22.3	21.1*
<u>New structures and additions to plant</u>	6.3	1.1**
<u>New machinery and equipment</u>	16.0	20.0***

Standard error of change:

*	4%
**	2%
***	4%

SOURCE: Annual Survey of Manufacturers, 1975-1976  
U.S. Department of Commerce  
Bureau of the Census, May 1979

U.S. GENERAL STATISTICSVALUE OF SHIPMENTS3546 - POWER DRIVEN HANDTOOLS

	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>
Power driven handtools/ <u>all items:</u> -----	622.9	801.2	849.1	771.9	877.6*
Power-driven handtools, electric	386.9	514.0	570.4	493.9	569.6**

Standard error:   \*   3%  
                         \*\*  2%

SOURCE: Annual Survey of Manufacturers, 1975-1976  
U.S. Department of Commerce  
Bureau of the Census, May 1979

U.S. GENERAL STATISTICS3546 - POWER DRIVEN HANDTOOLS

	<u>1975</u>	<u>1976</u>
<u>All employees</u>		
Number (1,000)	21.2	22.0*
Payroll (\$000,000)	219.9	261.8
<u>Production workers</u>		
Number (1,000)	14.7	15.9
Plant hours (000)	27.4	30.4
Wages (\$000,000)	136.8	165.6
<u>Value added by manufacture</u> (\$000,000)	603.8	702.5**
<u>Cost of materials</u> (\$000,000)	418.1	452.7
<u>Value of industry shipments</u> (\$000,000)	1,059.2	1,140.7
<u>Capital expenditures, new</u> (\$000,000)	22.3	21.1***
<u>End of year inventories</u> (\$000,000)	271.4	262.5

Standard error of estimate:

*	4%
**	3%
***	4%

SOURCE: Annual Survey of Manufacturers, 1975-1976  
 U.S. Department of Commerce  
 Bureau of the Census, May 1979

U.S. GENERAL STATISTICSGROSS BOOK VALUEOFDEPRECIABLE ASSETS AND VALUE OF SHIPMENTSFOR OPERATING MANUFACTURING ESTABLISHMENTS3546 - POWER DRIVEN HANDTOOLS

	(\$000,000)	
	<u>1975</u>	<u>1976</u>
Gross book value of depreciable assets/ end of year -----		
Total	274.7	284.8*
Structures and buildings	71.8	71.3**
Machinery and equipment	203.0	213.5***
<u>Value of shipments</u>	1,059.2	1,140.7****

Standard error of change: \*      3%  
                                   \*\*     7%  
                                   \*\*\*    2%  
                                   \*\*\*\*   3%

SOURCE: Annual Survey of Manufacturers, 1975-1976  
 U.S. Department of Commerce  
 Bureau of the Census, May 1979

U.S. GENERAL STATISTICS  
ON EMPLOYMENT AND LABOR COST  
3546 - POWER DRIVEN HANDTOOLS

	<u>1975</u>	<u>1976</u>
<u>Employees</u> (1,000)	21.2	22.0
<u>Labor costs</u> (\$000,000)		
Total	261.8	312.4
Payroll	219.9	261.8
Social security and other legally required payments	16.5	19.2*
Employer payments for other programs	25.4	31.4**

Standard error of change:   \*   4%  
                                  \*\*  3%

SOURCE: Annual Survey of Manufacturers, 1975-1976  
 U.S. Department of Commerce  
 Bureau of the Census, May 1979



U.S. GENERAL STATISTICS  
RENTAL PAYMENTS  
FOR  
STRUCTURES AND MACHINERY AND EQUIPMENT  
FOR OPERATING MANUFACTURING ESTABLISHMENTS  
3546 - POWER DRIVEN HANDTOOLS

	(\$000,000)	
	<u>1975</u>	<u>1976</u>
<u>Total</u>	8.0	8.1*
<u>Structures and buildings</u>	3.4	2.9**
<u>Machinery and equipment</u>	4.6	5.1***

Standard error of change:   \*   10%  
                                      \*\*   16%  
                                      \*\*\*  7%

SOURCE: Annual Survey of Manufacturers, 1975-1976  
 U.S. Department of Commerce  
 Bureau of the Census, May 1979

SHIPMENTS  
OF  
ELECTRIC POWERED HAND TOOLS  
BY PRODUCT TYPE

(Quantity in 1,000 Units)

(\$000,000)

	<u>1972</u>		<u>1974</u>		<u>1975</u>	
	<u>Qty</u>	<u>Value</u>	<u>Qty</u>	<u>Value</u>	<u>Qty</u>	<u>Value</u>
<u>Total</u>	-	\$386.9	-	\$549.8	-	\$508.9
Drills	6,458	87.5	5,658	111.0	6,036	113.3
Saws circular	1,775	70.7	3,016	74.5	2,666	69.0
Saws-jig, saber & reciprocating	3,250	49.0	4,057	68.2	2,877	44.6
Screwdrivers & nutrunners	363	13.8	156	10.9	89	6.5
Hammers	89	9.9	99	15.9	68	12.7
Impact wrenches	159	10.5	157	10.7	141	9.0
Planers & routers	477	14.9	786	27.1	757	26.7
Other hand tools, inc. shears & nibblers	476	44.8	1,475	37.3	1,282	34.9
Grinders & polishers	686	25.9	916	40.4	855	43.2
Sanders	854	19.2	1,014	29.3	1,000	29.7
Parts & attachments	-	40.7	-	124.4	-	119.2

SOURCE: U.S. Dept. of Commerce  
Current Industrial Reports

U.S. REAL SHIPMENTS  
OF  
POWER DRIVEN HAND TOOLS  
(Constant 1967, \$000,000)

	<u>Value</u>	<u>Average annual % change</u>
1947	\$191.5	-
1954	-	-
1958	-	-
1963	-	-
1964	-	-
1965	438. 438.1	4.7%
1966	493.8	12.7
1967	436.0	11.7
1968	451.4	3.5
1969	488.0	8.1
1970	455.4	-6.7
1971	471.9	3.6
1972	529.2	12.1
1973	679.6	28.4
1974	659.8	-2.9
1975	545.1	-17.4
1976	617.2	13.2
1977	650.5	5.4
1978	682.0	4.8
1985	894.4	3.9

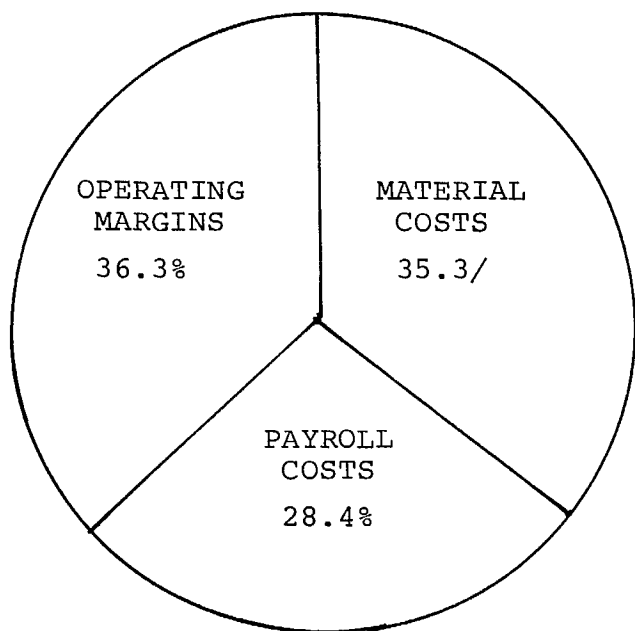
SOURCE: Annual Survey of Manufactures,  
 Calculated by Morton Research

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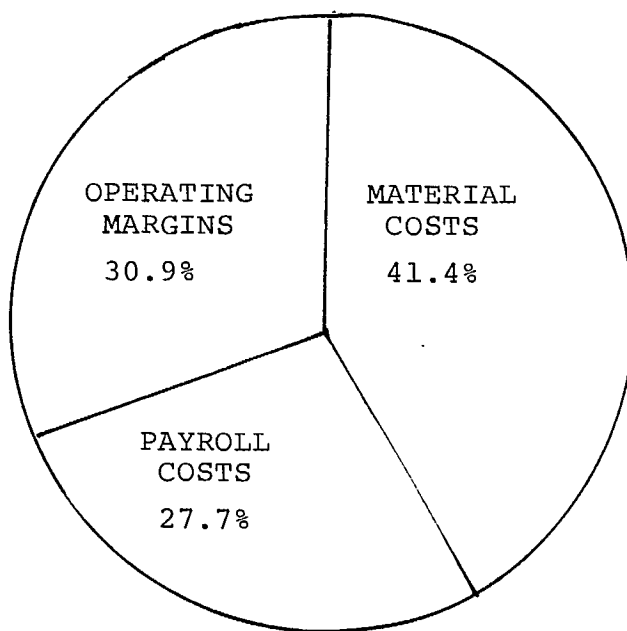
	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	Unit of Measure	Annual Growth
35461 005 Electric hand tools shipments	na	na	386.9	514.0	570.4	493.9	569.6	760.1	-	-	mil\$	7.41%
35460 005 Power driven hand tools:												
exports(after '77 inc.chain saws)	59.1	58.3	72.7	99.0	137.4	138.4	167.8	187.9	322.1	-	mil\$	14.3b%
imports	14.6	18.0	26.0	34.6	69.2	64.8	73.3	104.4	201.3	-	mil\$	34.8b%
shipments	523.	554.	725.	801.	849.	772.	878.	1461.	-	-	mil\$	9.0b%
35460 004 Power driven hand tools industry, wholesale price	-	-	-	-	-	na	100.0	104.2	111.1	119.3	76 index	

SOURCE: Predicasts' Basebook

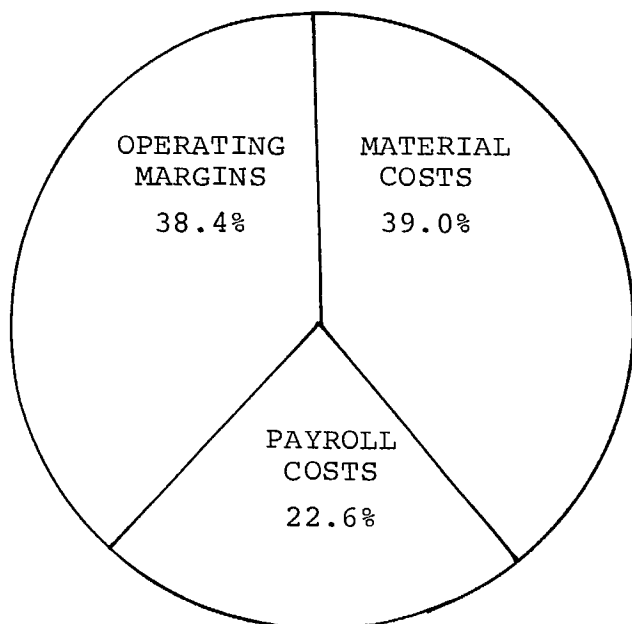
U.S. OPERATING COSTS  
IN THE POWER HAND TOOL INDUSTRY



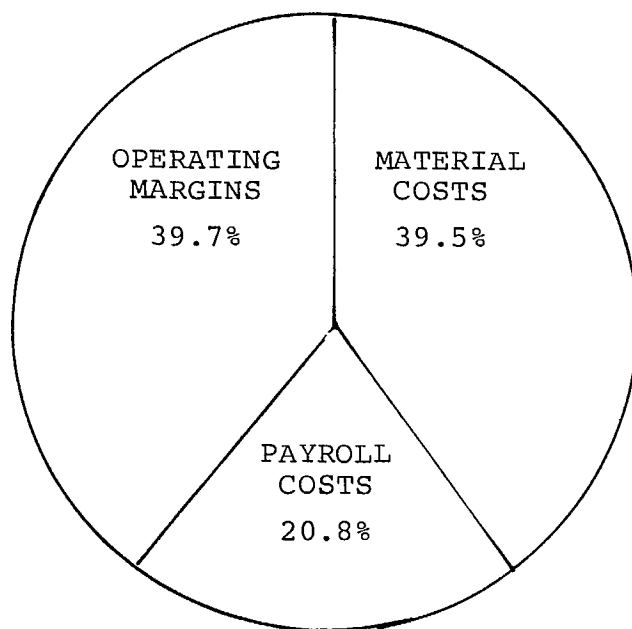
1972



1973



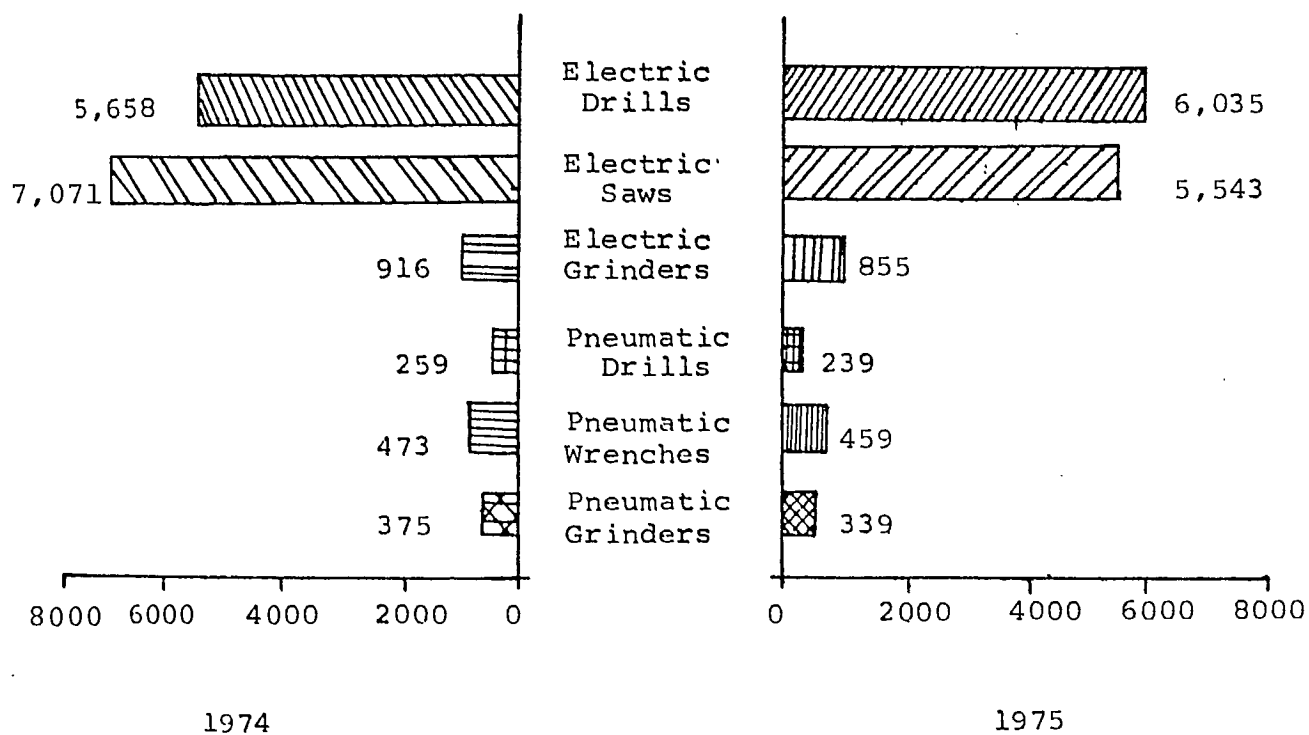
1974



1975

U.S. QUANTITY OF SHIPMENTS  
OF  
POWER DRIVEN HAND TOOLS

(Thousand Units)



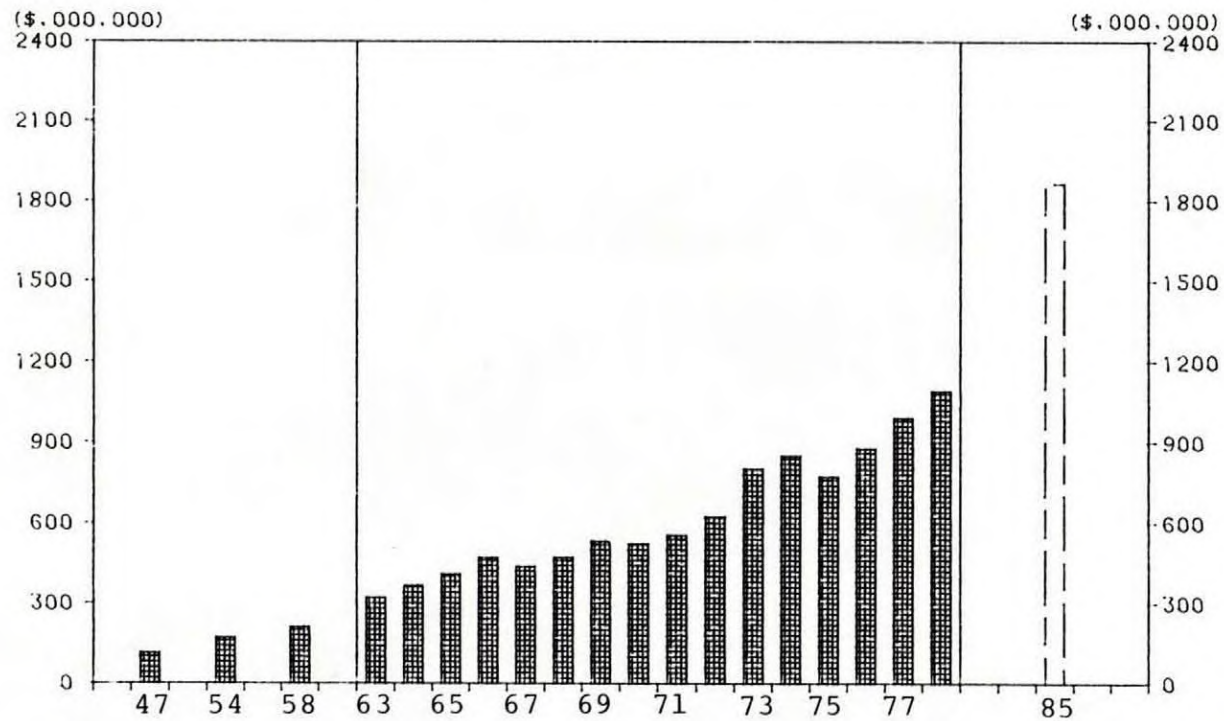
PRODUCTION  
ELECTRO-MECHANICAL HAND TOOLS

(000 units)

	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
<u>United States</u>	--	--	14585	--	18287	--	--	--
<u>Japan</u>	2526	2094	2473	3524	3505	2851	4321	5339
<u>West Germany</u>	4077	3112	3559	4193	4974	4352	5217	5449

SOURCE: Yearbook of Industrial Statistics, 1977 Ed., Vol. II  
Commodity Production Data, 1967-1977

THE U.S. POWER HAND TOOL MARKET  
 SHIPMENTS OF POWER HAND TOOLS  
 (1947-1978, 1985)



—— U.S. VALUE OF THE SHIPMENTS  
 - - - - - FORECAST BY U.S. BUREAU OF THE CENSUS

SOURCE : U.S. DEPARTMENT OF COMMERCE,  
 BUREAU OF THE CENSUS



U.S. SHIPMENTS OF POWER-DRIVEN HAND TOOLS

BY PRODUCT TYPE

(Dollars in Millions)

	<u>1967</u>	<u>1972</u>	<u>1974</u>	<u>1975</u>
POWER-DRIVEN HAND TOOLS, TOTAL	\$436.0	\$622.9	\$833.0	\$789.5
Power-Driven Hand Tools, Electric:				
Portable power-driven hand tools				
Drills:				
Armature mounted primarily on sleeve bearings:				
1/4 inch cuck size & under	17.5	12.5	13.4	14.5
6/16 inch & over	21.8	35.8	45.6	52.3
Armature mounted primarily on other than sleeve bearings:				
1/4 inch chuck size & under	6.9	6.1	7.6	7.5
5/16 inch & over	16.6	33.1	44.4	39.0
Saws Circular:				
Armature mounted primarily on sleeve bearings:				
7 inch blade & under	12.3	2.7)	42.2)	40.1
Over 7 inch blade	2.6	23.4)		
Armature mounted primarily on other than sleeve bearings:				
7 inch blade & under	10.2	37.6	9.0	10.6
7 inch to 8 inch blade	14.5	7.0	18.5	14.3
Over 8 inch blade			4.8	4.0
Saws-Jig, Saber, Reciprocating:				
Armature mounted on ball bearings )		14.0	28.6	17.8
Armature mounted on other than ball bearings )	23.9	35.0	39.6	26.8
Screwdrivers & nut runners:	4.6	13.8	10.9	6.5
Hammers:	10.1	9.9	15.9	12.7
Impact wrenches:	6.9	10.5	10.7	9.0
Planers & routers	7.6	14.9	27.1	26.7
Shears & nibblers:	20.5	2.8)	37.3)	34.9
Other electric-powered hand tools: )		42.0)		
Sanders, polishers & circular grinders, exc. bench grinders:				
Angle grinders, polishers & sanders )		20.7)		
Straight grinders, incl. die grinders)	12.5	5.2)	40.4	43.2

(cont'd)

219.

	<u>1967</u>	<u>1972</u>	<u>1974</u>	<u>1975</u>
Sanders:				
Orbiting )	\$	\$ 11.2	\$ 17.0	\$ 17.0
Oscilating, reciprocating & )	19.6			
vibrating		8.0	12.3	12.7
Attachments & accessories electric-powered hand tools excl. saw blades, drills screwdrivers, etc.:	49.2	40.7	124.4	119.0
Power-driven hand tools, pneumatic and powder actuated:	159.5	217.9	283.2	280.6
Pneumatic:				
Drills, screw drivers & nutrunners:	27.9	26.3	35.8	27.6
Percussion tools (such as nut runners, tappers, scalers):	13.3	11.2	17.4	15.5
Impact wrenches:	24.4	40.5	51.8	46.8
Grinders, polishers & sanders:	13.8	21.0	53.2	53.4
Other pneumatic-powered hand tools:	29.2	46.2	35.4	38.5
Attachments & accessories (exc. drills, screwdrivers, etc):	47.5)	72.6)		
Powder-actuated hand tools:	3.4)			

SOURCE: U.S. Dept. of Commerce, Current Industrial Reports  
These numbers may differ with Census numbers

SALES OF POWER HAND TOOLS BY COMPANY

(\$000's)

		<u>1976 Company sales of power hand tools</u>	<u>% of total Company sales</u>
<u>Black &amp; Decker Co.</u>	Manufacturer of electric pneumatic & gasoline powered tools & accessories & service	\$665,877	89%
<u>Rockwell International Corporation</u>	Manufacturer of automotive, aerospace, electronic, utility & industrial & consumer products. The Power Tool Division manufactures consumer & industrial power tools	172,000	14%
<u>Skil Corporation</u>	Manufacturer of portable electric tools & accessories along with service & repair parts	117,360	81%
<u>Singer Company</u>	Manufacturer of consumer sewing machines, industrial sewing machines, various consumer & industrial products & Government related activities. The Power Hand Tool & Floor Care Division produces portable power hand tools	115,700	5%

SOURCE: Annual Reports, 10K Report  
Moody's Investor Service

ADVERTISING TRENDS

The majority of advertising in the power hand tool industry is associated with sales of electric powered hand tools. The reason for this is that electric hand tools are principally a consumer-oriented market, while pneumatic and hydraulic hand tools are industrial market products. Advertising expenditures in this industry are fairly low but it should be noted that these expenditures have more than tripled over the past six years. This trend emphasizes the growing importance placed on the consumer do-it-yourself market. Price competition is intense.

Total major media power hand tool advertising amounted to just over \$11 million in 1976, up nearly 22% from 1975's \$9 million. Advertising represents more than 1% of power tool sales up from just one half of 1% six years earlier.

Stanley Works, followed by Black and Decker, Skill and Sears Craftsman, are the largest advertisers in the power hand tool industry. Together, these four companies account for about 80% of all power hand tool advertising. Stanley Works alone represents over 25% of the total. Prior to 1976, Black and Decker was the industry leader in advertising.

Two of these four companies have increased their advertising to sales ratio. Stanley Works now allocates 0.5% of sales

revenue to major media advertising, up from 0.3% in 1973. Skil Corporation spends over 1%, up from 0.1% over the same period.

Network television accounts for about 61% of all advertising expenditures and spot television represents an additional 21%.

Stanley Tools, followed by Black and Decker and Sears Craftsman are the most heavily advertised power tool brands.

FINANCIAL TRENDS

Sales growth in the power tool industry as a whole has slowed somewhat in recent years. Return on sales has been trending downward from the 1970 levels. This is perhaps due to the increasingly competitive nature of the industry whereby operating costs cannot be passed on as price increases.

The following highlights indicate some salient financial developments for the four firms analyzed:

- . In the electric tool market, Black & Decker and Skill Corp. have the highest net sales that is \$1.1 billion and \$200 million respectively.
- . Highest net sales in the pneumatic tool market were recorded by Chicago Pneumatic Tool Company.
- . Cost of goods sold as a percent of sales has remained lower for the electric tool companies, Black & Decker and Skill Corp., as compared to the pneumatic tool companies, Chicago Pneumatic Tool Company and Rodac Corp.
- . Black & Decker has exhibited consistently high profitability, averaging 14% in the 1970-1977 period (net income before taxes/sales).
- . Black & Decker has tripled its assets since 1970 and Chicago Pneumatic has almost doubled theirs over the same period. The assets of Rodac Corp. have increased more than six times since 1970.
- . Rodac Corp. incurred losses in net income for the years 1975 and 1976. Cost of goods as a percent of sales averaged over 75% during these two years.

- . In recent years, the larger producers appear to be more profitable.
- . The year 1975 was a bad year for the power tool industry as a whole.

SALES DISTRIBUTION TRENDS

Almost 71% of all power hand tool wholeselling is conducted by the merchant wholesaler, while merchandise agents and brokers account for an additional 19%. A further breakdown shows that the hardware merchant wholesalers alone accounts for about 52% of sales, while merchandise agents and brokers of hardware, plumbing and heating equipment represent about 16%.

Retail hardware and department stores account for nearly all power tool sales to the consumer market. For the most part, the number of retail hardware stores is on the rise along with wholesale hardware stores. The wholesaler represents the majority of sales to the industrial market. Pneumatic tools are distributed through the industrial market, while just over 50% of the electric hand tools distributed are channeled through the consumer market. Industry sources indicate that electric hand tools are now becoming more of a department store item because of the department store's ability to mass advertise and conduct other sales promotion functions. Sources also remark that electric drills and saws appear to be the fastest selling product lines.



U.S. MANUFACTURERS  
OF ELECTRIC POWER TOOLS

<u>Company</u>	<u>Product Line</u>	<u>Employee</u>
1. Valley Steel Products Co. (Suby. of Valley Ind., Inc) St. Louis, Mo. 63102	Mfgr. & fabricate heat exchanges pumps & fit- tings tubular boods boilers drilling tools & coal mine equip. & whl. steel	1,450
2. Worthington Compressors, Inc. (Suby. of Studebaker- Worthington Corp.) W. Springfield, Ma. 01089	Mfgr. air & process compressors & engines	3,550
3. Desa Industries Inc. ((Suby. of AMCA Inter- national Corp.) Hanover, N.H. 03755	Mfgr. & ret. hydraulic excavators & chain saws Holding Co.	800
4. Disston Inc. Pittsburgh, Pa. 15219	Mfgr. & sell hardware & industrial prod., incl. cordless electric prod.	1,419
5. Hilti Inc. Stamford, Ct. 06902	Mfgr. & Whl construction tools & related prod.	900
6. Millers Falls Co. (Suby. of Ingersoll- Rand Co.) Greenfield, Ma. 01301	Mfgr. portable electric tools precision measuring tools metal cutting saws & mechanics & carpenters hand tools	815
7. Milwaukee Electric Tool Corp (Suby. of Amstar Corp.) Brookfield, Wi. 53005	Mfgr. portable electric tools	1,010

8.	Levolor Lorentzen Inc. Hoboken, N.J. 07030	Mfgr. venetian blinds & components metal fa- bricators stamping metals working machinery weld- ments rool forming & strip coating business Business mgmt. adminis- trative consulting & engineering services	650
9.	Wilton Corp. Des Plaines, Ill. 60010	Mfgr. metalworking ma- chines power hand tools packaging prod. Gary iron foundries & mfgr. woodworking machinery	490
10.	Thor Power Tool Co. (Suby. of Stewart-Warner Corp.) Chicago, Ill. 60604	Mfgr. power driven hand tools edge tools rubber & plastic hose 7 belting & motors & generators	940
11.	Western Forge Corp. Colorado Spgs., Co. 80907	Mfgr. mechanics hand tools	600
12.	Fairmont Railway Motors Inc. Fairmont, Mn. 56031	Mfgr. railway motor cars maintenance equip. & power driven hand tools Gray Iron Foundries	500
13.	Sioux Tools Inc. Sioux City, Ia. 51102	Mfgr. Metalworking ma- chinery portable elec. air & valve service tools	500
14.	Pritchett Engineering & Mch. Houston, Tx. 77020	Mfgr. power driven hand tools & rolling mill mch	200
15.	Stow Mfg. Co. Binghamton, N.Y. 13902	Mfgr. flexible shafts special light construc- tion mach. valves con- trols & mechanical power transmission equipment	350

16.	Wen Products Inc. Chicago, Ill. 60631	Mfgr. electric portable tools	300
17.	Brunner & Lay Inc. Franklin Pk., Ill. 60131	Mfgr. concrete cutting tools & pneumatic drill accessories	200
18.	Lisle Corp. Clarinda, Ia. 51632	Mfgr. automobile service tools mechanics creepers magnetic plugs & magnetic chip defectors & drill grinders	210
19.	AEG Power Tool Corp. (Suby. of AEG Telefunken Corp.) Norwich, Ct. 06360	Import & Mfg. Power Tools	113
20.	Hoe R & Co. Inc. Scarsdale, N.Y. 10583	Mfgr. hand saws & saw blades & power driven hand tools	210
21.	Hoff Co. Inc. Richmond, Ind. 47374	Mfgr. portable power tools & power trans- mission equipment	130
22.	Dotco Inc. Hicksville, Oh. 43526	Mfgr. pneumatic hand tools pneumatic power motors & general indus- trial machinery	86
23.	Asko Inc. Homestead, Pa. 15120	Mfgr. power driven hand tools shear & industrial knives & rolling mill equipment saw blades & tungsten carbide prod.	325
24.	Ideal Tool & Mfg. Co. Chicago, Ill. 60636	Mfgr. tool dies & special machinery	117
25.	McKenzie PC Co. Pittsburgh, Pa. 15234	Whl. & fabricators of skid-mounted engine driven compressors & generator sets	20

26.	Electro Engineering Prod. Co. Chicago, Ill. 60647	Mfgr. electric portable power tools electric motors generators & special motors	250
27.	Benner-Nawman Inc. Concord, Ca. 94523	Mfgr. telephone booths tools for cutting tele- phone television & elec- trical cable terminal boxes & cabinets for telephone & cable TV	43
28.	Zimmerman & Jansen Inc. (Suby. of Zimmerman & Jansen GNBH) Glenshaw, Pa. 15116	Mfgr. power driven hand tools metal forming machine tools & material handling equipment	50
29.	Blackstone Industries Inc. Bethel, Ct. 06801	Mfgr. portable cutting machine saw guards & blades automatic lubri- cation Equip. miniature Power tools & cattle ranch security brokers Dlrs. & Flotation Co.	45
30.	Lancaster Pump & Mfg. Co. Lancaster, Pa. 17604	Mfgr. pumps water systems water conditioners & Chain saws & garage door opera- tors by electronic signal	35
31.	Precision Instruments Des Plaines, Ill. 60018	Mfgr. machine tool acces- sories power driven hand tools & measuring instruments	50
32.	Jetline Products Inc. (Suby. of Thomas In- dustries Inc.) Matthews, N.C. 28105	Mfgr. power driven & electrical tools & equip. vacuum cleaners non-current carrying wiring dev. & serv. industry machines	35
33.	Oatey Co. Cleveland, Oh. 44135	Mfgr. plumb automotive & hardware Acess. & Consumer do-it-yourself products	130
34.	MacKay Homes Inc. Walnut Creek, Ca. 94598	Gen. ind. buildings & ware- houses contractor & mfr. power driven hand tools & real estate subdividers & develop.	10

CONCENTRATION TRENDS

The power hand tool industry has a somewhat high level of concentration and in recent years, it seems to have been trending upward. The top four power tool producers accounted for 41% of all shipments in 1972, versus 40% of shipments in 1954. Concurrently, 65% of all shipments were represented by the top eight companies in 1972 versus 59% in 1954.

Of the two major power hand tool markets, electric and pneumatic, the electric tool market is the most concentrated. In 1972, the top four companies held 61% of the total electric hand tool sales.

The number of power hand tool plants is on the rise with plants that have between 1,000 and 2,500 employees contributing 39% of all shipments.

JAPAN

JAPANA DEVELOPING TASTE FOR U.S. POWER TOOLS

Japanese homeowners, confronted with the high cost of both repairmen and the Sunday golf game, are becoming eager Sunday carpenters. The trend, though still emergent, is providing a small but fast-growing market for several U.S. power tool companies including Black & Decker, Skil, and Rockwell International. The three American companies account for nearly one-third of a \$40 million market that is growing at a 30% annual clip.

Leading the American charge is Black & Decker Mfg. Co., which pioneered the Japanese market for home power tools ten years ago and has built its own participation in it to \$7 million a year in sales. Black & Decker hopes to strengthen its position as market leader with a new line of variable-speed drills that it is selling at the same price as competitors' singlespeed models. And Black & Decker is expected to begin soon to market other products from its U.S. line, adapted to Japanese voltage requirements.

The other two U.S. companies lag well behind but claim to be growing fast. Skil Corp., which began marketing in Japan in mid-1973, had sales of about \$2 million last year and says they are climbing at a 25% annual rate. Rockwell, which started only April 1976, claims that it came "pretty close" to its target of \$1 million in sales in 1976. This year says Tom Tsurutani, manager of market planning and development for Rockwell's Japanese subsidiary, "we are thinking of more than doubling our business."

INHIBITED COMPETITORS

The Americans are rushing to consolidate their hold on the market before the big Japanese companies move into consumer power tools. So far, Hitachi Koki Ltd. and Makita Electric Works, which together split 80% of Japan's \$200 million power tool market, have made little effort to expand beyond the professional construction business that accounts for 80% of total sales. One reason, admits Sumio Ando, Tokyo branch manager for Nagoya based Makita, is the fear of giving rise to charges of excessive market share by Japan's Fair Trade Commission.

Concern about riling their dealers also inhibits the Japanese toolmakers. "Our sales network is mostly through hardware shops," explains Ando. "If we want to sell handyman tools, we have to go through the supermarkets with reduced prices. We are already getting complaints about price cutting from our hardware shops."

The U.S. companies know that inevitably the Japanese will muscle into the market. Makita, in fact, over the past few years has tripled the number of products it offers do-it-yourselfers. "The main problem for the big professional power toolmakers," notes Rockwell's Tsurutani, is switching to low-priced consumer products. It involves some costly design investment. For at least the next several years, we think we will have some advantages."



To capitalize on that advantage, Rockwell and its U.S. competitors will have to learn their way around Japan's multitiered distribution system, which has long been a problem for foreigners trying to crack consumer markets. The toolmakers also have to overcome a more basic problem: teaching the Japanese how to use power tools. "A lot of average consumers just don't know the function of a power tool," laments Arnold L. Breidenbaugh, Black & Decker's manager of Northeast Asia. He tells of mechanical woes with a cordless lawn trimmer because many Japanese use it as a lawn mower. "They have very small lawns," says Breidenbaugh. "The battery is just not built for that."

SOURCE: Business Week  
January 1977

MONOGRAPH ON TRADE CHANNELS \*HAND-TOOLS AND THEIRCOMPONENTS IN JAPANIntroduction

...

This monograph on trade channels for hand-tools and their components 1/ in Japan is designed to inform manufacturers and exporters from developing countries on the major trends in the trade and in particular to explain briefly how the import channels for these goods function. It also explores the best methods for an exporter of hand-tools and their components from a developing country to initiate contact with Japanese buyers with a view to developing business relationships.

No attempt has been made to examine in detail other aspects of the Japanese market for the products. A market profile has been provided in Annex II. For further information, exporters are advised to contact sources listed in section C. 3.

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1/ See Annex I for definition.

\* The information for this section is taken from a Monograph on Trade Channels for Hand-tools and their Components in Japan, prepared by the International Trade Center UNCTAD/GATT from a grant by Canadian International Development Agency (CIDA)

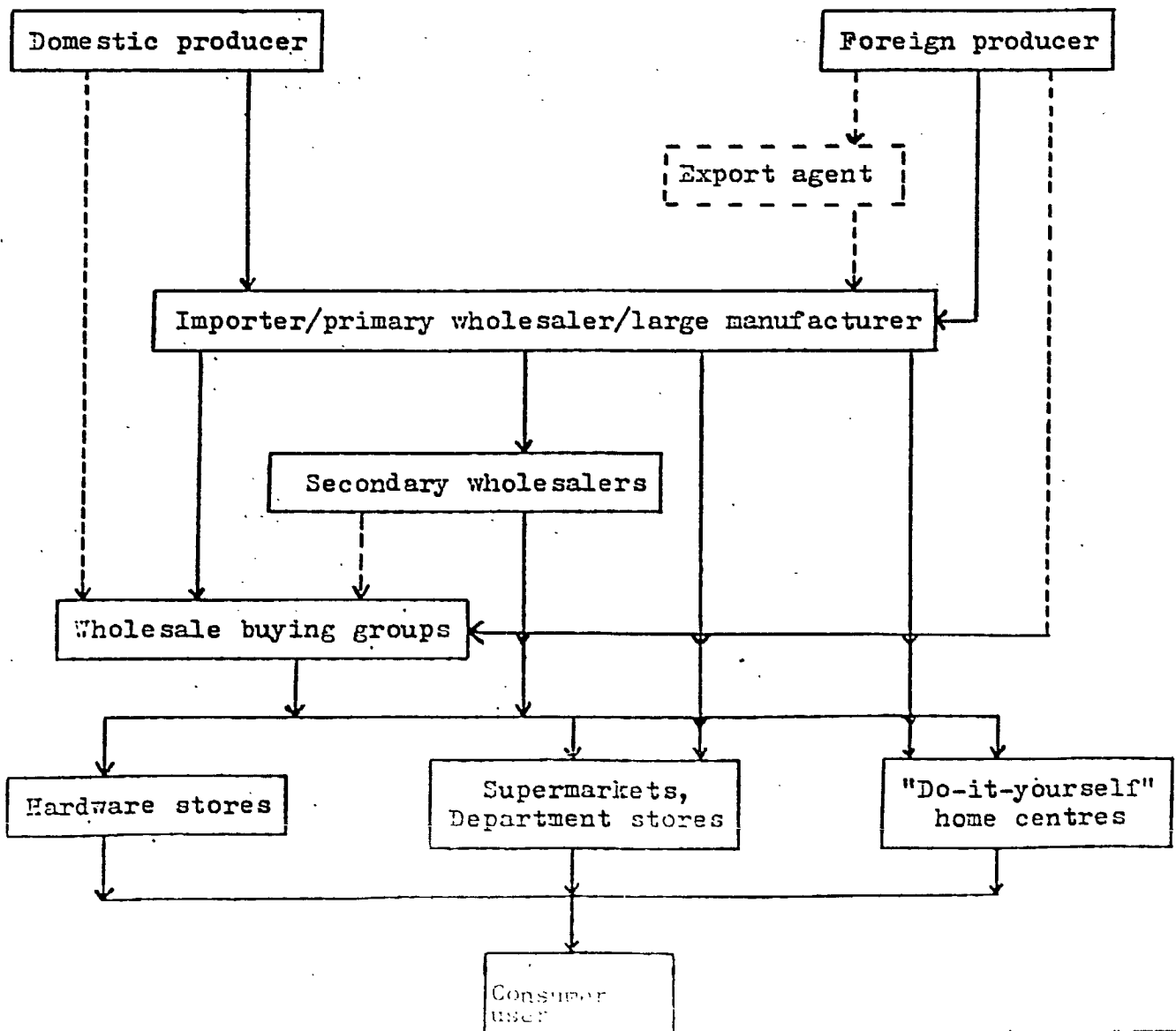
### A. Selection of trade channels

Trade channels for hand-tools are different from those for components in view of their different users. Below, the channels for the final product, the hand-tool, have been dealt with separately from the intermediary product, the component.

#### 1. Hand-tools

Trade channels for hand-tools in Japan are characterized by both traditional and dynamic aspects. The traditional distribution system, which is still utilized for the vast majority of hand-tools, is a complex one with a web-like structure of middlemen. In recent years, however, the formation of "do-it-yourself" home centre chain stores and buying groups have added a new dynamic aspect, a tendency towards direct buying. This trend appears to be growing.

A simplified diagrammatic representation of the trade channels for hand-tools is given below:



(a) Trading companies<sup>2/</sup>

The principal import channel for hand-tools is a trading company. This company may act as an agent for other trading companies, wholesalers, manufacturers or major retailers. It may import on its own behalf, combining the functions of an importer and wholesaler. It may also be a branch of a manufacturing company or may itself have a manufacturing branch.

Those trading companies dealing with hand-tools are generally medium and small in size. Their normal course of business is as follows:

- Following the reception of an interesting offer in terms of type, monthly delivery capacity and price of articles, by a potential supplier, they contact their regular clients, either secondary wholesalers or retailers with the offer.
- If interest is demonstrated by their clients, they will make a trial order with the supplier.
- If the trial order meets the quality standards of their clients who, if interested, will place orders with the trading company, larger-scale business will ensue.

Apart from participating in the appropriate Japanese trade fairs and exhibitions (see Annex IV), occasionally trading company representatives will visit the major international trade fairs which cover their product lines.

Some trading companies would be willing to assist a developing country producer, well-known to them, in product development.

Trading companies when also acting as primary wholesalers may have their own private brand names under which they would sell imported products.

In general, an exclusive agency contract is not required by these companies.

A list of trading companies is given in Section C. 1.

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<sup>2/</sup> The principal establishments involved in Japanese commerce are trading companies. In 1970 they handled about 81 per cent of Japan's total imports.

(b) Major retailing chains and buying groups

In recent years, certain large retail chains, namely franchised "do-it-yourself" home centres, have begun to deviate from the traditional trade pattern and have started to import many products direct. Moreover many smaller hardware and "do-it-yourself" stores have started to join wholesale buying groups for the purpose of benefitting from reduced costs of larger-scale buying. Wholesale buying groups have also deviated from traditional trading practices, emphasizing direct buying from manufacturers, including foreign producers.

As shown below, the projected changes in distribution 1973-1985 would indicate the substantially increasing role of "do-it-yourself" centres and supermarkets expected for these outlets.

Projected change in DIY product sales channels

1973	100%	1985	100%
Department stores	15%	Department stores	5%
Hardware stores	21%	Hardware stores	15%
DIY speciality stores	5%	DIY speciality stores and franchise chain outlets	50%
Franchise chain outlets	9%		
Supermarkets	50%	Supermarkets	30%

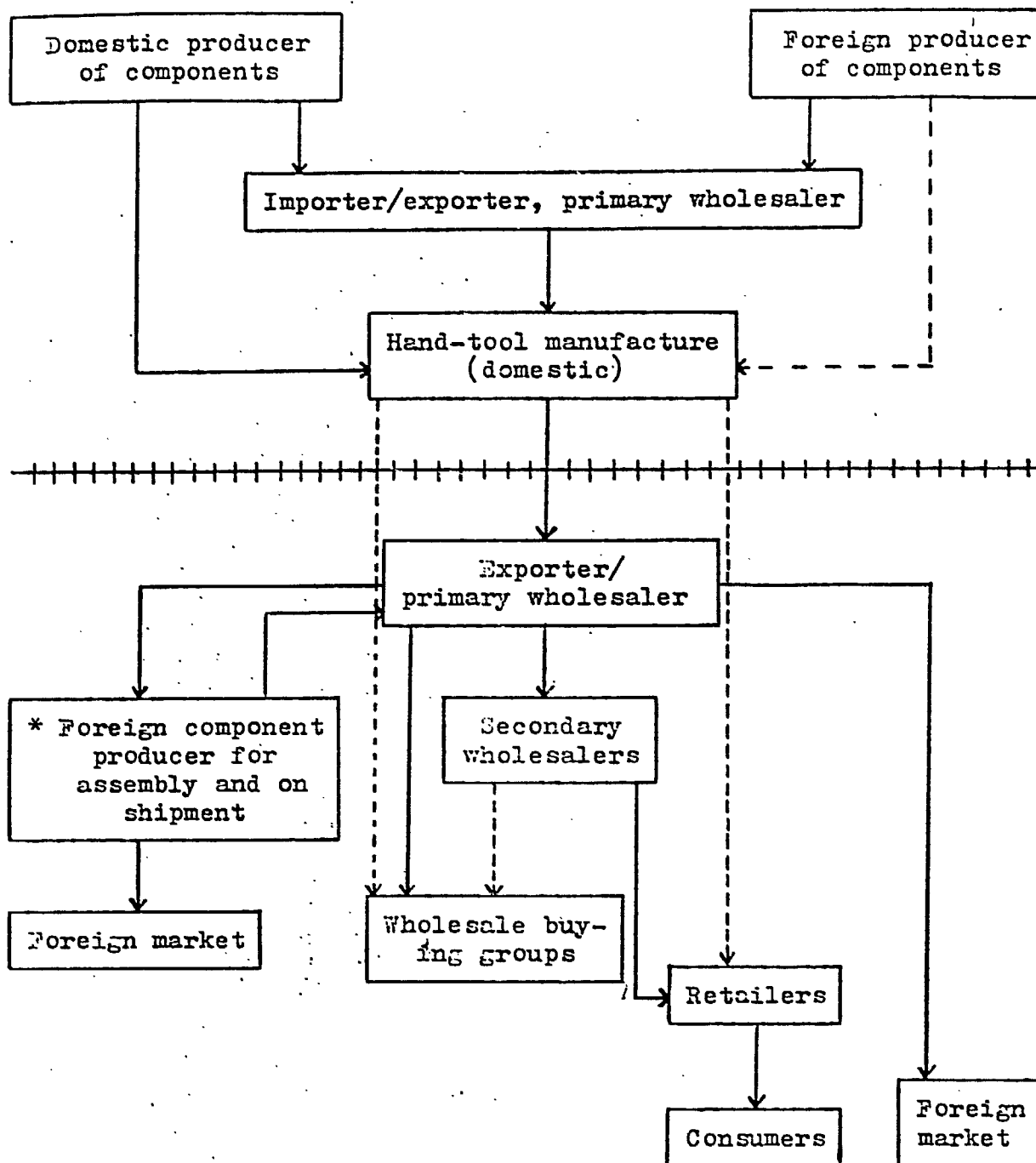
Source: JETRO: The Agora, Tokyo, No. 17, August 1976.

Along with the trends towards formation and expansion of DIY chain stores and rapidly increased membership in wholesale buying groups which took root in the early 1970s, the practice of direct buying and import has shown substantial growth.

A list of the major retail chains and central buying groups is given in section C. 2.

2. Hand-tool components

The distribution system flow of hand-tool components is given in a simplified form below.



\* See text for explanation

- - - Less frequent channel

++++ Final product distribution as well as replaceable components, namely wooden handles designed to specifications for a given product, falls below line.

In recent years, developments in the hand-tool industry (see Annex II) have resulted in the creation of a further trade channel. This is the channel for components directed to Japanese hand-tool manufacturers. The normal exporters/distributors of Japanese hand-tools have increasingly assumed the role of suppliers of components to the industry, especially wooden handles. The domestic capacity to fill the demand for these articles apparently has fallen short. Moreover, high domestic prices of these items, reflecting the scarcity of required hardwoods and their relatively high labour intensity, have greatly increased the interest of hand-tool manufacturers to seek their supplies elsewhere.

Domestic hand-tool manufacturers signal their exporters/distributors to locate potential low cost quality wooden handle suppliers. The exporter who may receive contacts from these suppliers, sends samples of the required handles for a given tool or tools to a potential supplier. He may equally desire to visit such a supplier's production facilities to determine the output capacity, available equipment and general seriousness of his potential business associate. More frequently, however, such a visit would occur after acceptable copies of his samples have been returned to him by a supplier.

On the basis of well-executed and standardized copies of samples, competitive prices and, in some cases, a visit to the supply source, a trial order of several thousand pieces according to specifications would be placed.

Should the trial order strictly comply with set delivery dates and the pre-specified standardization and quality requirements with minimum rejects (below 5 per cent), large-scale business should be forthcoming.

An alternative trade channel involves the assemblage needs of the Japanese manufacturer. Assembly of components such as wooden handles is often labour intensive. High labour costs have encouraged some Japanese hand-tool manufacturers to seek foreign handle producers with assembly facilities. In this connexion, the Japanese metal components are shipped to the foreign handle producer who, in turn, fixes the handle to the metal part, packages the final product and ships it either to the destination export market or back to Japan to the original exporter/distributor.

A list of component importers and manufacturers is given in Section C. 1.

## B. Recommendations

The following recommendations are oriented towards facilitating a new supplier's entry on the Japanese market for hand-tools and their components.

### 1. Trade approaches

The initial trade approaches should be designed to introduce the maximum number of potential Japanese buyers to a supplier and his articles and to establish an image of seriousness and good business practices. The latter may go far in developing a buyer's confidence in a new supplier which is essential for a lasting business relationship.

#### (a) Initial steps

The widest coverage of potential buyers in Japan may be achieved by the following methods:

- For complete hand-tools, contact by letter, preferably in English, enclosing a photographic brochure, c.i.f. and f.o.b. US\$ price quotations and monthly capacities per article. A small sample may enhance the interest of a buyer.
- For wooden hand-tool handles, contact manufacturers and component importers by letter, preferably in English, enclosing a company profile with information on available equipment and woods, capitalization, number of employees, types of articles presently produced and expansion plans. A sample article should be sent to enable the buyer to judge the general quality level. Small samples of the available woods would also be helpful.
- Advertisizing in the major Japanese trade journals (see Annex III) to which many Japanese traders and manufacturers subscribe.
- Participation<sup>3/</sup> in or attendance of major Japanese trade fairs (see Annex IV). This may be coupled with visits to individual importers and manufacturers accompanied by samples and price quotations.

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<sup>3/</sup> The ITC publications "Official Commercial Representation Abroad: A Handbook For Officers of Developing Countries" (Geneva, 1973) gives guidelines for the selection and procedures to be followed by intending participants.



(b) Follow-up

Follow-up contacts with interested buyers should be prompt. Samples should be carefully controlled for quality. In the case of wooden handles, standardization according to specifications of a manufacturer is indispensable; wood tones of all articles should be the same and wood density requirements respected. Initial impressions made by a producer are of utmost importance in encouraging or destroying a buyer's interest.

(c) Entering a business venture

For final products, business with several agents/importers located in Japan's major trading centres, i.e. Tokyo, Osaka, Nagoya, may offer the best possible means for entry on the Japanese market. Few agents/importers insist on exclusive agency rights.

2. Trends in buying

It is recommended to keep abreast of the expansion and development of DIY home centre chains and wholesale buying groups. Although these buying groups accounted for a small percentage of purchases of hand-tools in 1977, their share is expected to grow substantially in the near future. These groups are increasingly turning away from traditional indirect procurement towards direct purchasing and importing. In the future they may offer interesting outlets for hand-tool producers from developing countries.

3. Delivery dates

Of utmost importance for manufacturers who count on a specific monthly allotment of components to finalize their own products and thus respect their own delivery dates, a component supplier must carefully comply with specified monthly delivery dates.

4. Conclusive remarks

Given the present difficulties of many developing country suppliers to produce acceptable quality metal components for hand-tools and the highly interesting demand situation in Japan for wooden handles, it may be advisable for developing country producers to concentrate on supplying the wooden handle market, where their comparative advantage would be far greater. In recent years, scarcity of required hardwoods and rising labour costs in Japan have encouraged Japanese hand-tool manufacturers to substitute, whenever possible, wooden handles by other materials. Until now, no material has been found as a satisfactory substitute for hand-tool handles directed to professional use. Japanese manufacturers have thus become highly interested in finding low cost supply sources for high quality wooden handles elsewhere.

C. Useful addresses1. Trading companies and hand-tool manufacturers using wooden components

Kinboshi Co. Ltd (Golden Star)  
Hon-machi, Ono City  
Hyogo  
(components)

Ishida Seisakusho Co. Ltd  
1 chome, Fukui  
Miki-shi  
Hyogo  
(components)

Nanri Trading Co. Ltd  
P.O.Box Nagoya Higashi 124  
32, Nunoike-cho  
Higashi-ku  
Nagoya 461  
(components)

Ars Edge Tools Manufacture Co. Ltd  
2-32, Kyuken-nishi, 2-chome  
Sakai  
Osaka 590  
(components)

Daiwa Trading Co. Ltd  
15-1, Unagidani Nakanochō  
Minami-ku  
Osaka 542  
(importer)

Keyser Mercantile Co. (Japan) Ltd  
Daidoseimei Bldg. 1, Tosabori  
1-chome, Nishi-ku  
Osaka 550  
(importer)

Naruko Trading Co. Ltd  
Aho-yama Bldg.  
22, Fushimi-machi, 2-chome  
Higashi-ku  
Osaka 541  
(importer)

Shinwa Hardware Co. Ltd  
40, Itachibori Kita-dori, 1-chome  
Nishi-ku  
Osaka  
(importer)

Okada Hardware Co. Ltd  
5-88, Suchiro 2-chome  
Miki-shi  
Hyogo  
(components)

K. Matsuda & Co. Ltd  
P.O.Box Nagoya Chikusa 130  
3-45, Daiko-cho  
Higashi-ku  
Nagoya 461  
(importer)

Ohgiya Antiques  
5-11, Chikusa-dori  
Chikusa-ku  
Nagoya 464  
(importer)

Asaka Mercantile Ltd  
14, Sambo-cho, 1-chome  
Sakai  
Osaka 590  
(components)

Ishikura & Co. Ltd  
42, Kajiya-machi  
Minami-ku  
Osaka 542  
(importer and components)

The Kiichi Tools Co. Ltd  
P.O. Box 121  
Nishi  
Osaka  
(importer and components)

Sankyo Trading Co. Ltd  
34, Uchihirano-machi, 2-chome  
Higashi-ku  
Osaka 540  
(importer)

Yamaguchi Shaji Kaisha Ltd  
19, Itachibori-minami-dori, 4-chome  
Nishi-ku  
Osaka 550  
(importer)

Yamazen Co. Ltd  
32, Itachibori-kita-dori, 3-chome  
Nishi-ku  
Osaka 550  
(importer)

Yuasa Hardware Co. Ltd  
Nihon Seimei Midosuji  
Hachimancho Bldg.  
1, Hachimancho 6-chome  
Minami-ku  
Osaka 542  
(importer)

Eastern Tool Co. Ltd  
Daiwa Bldg.  
1-17, Isogami-dori, 5-chome  
Fukiai-ku  
Kobe 651  
(components)

Naigai Ltd  
46-1 Motomachi-dori, 4-chome  
Ikuta-ku  
Kobe 650  
(importer)

Sanko Trading Co. Ltd  
Fukuoka Bldg.  
5, 1-chome, Sakaemachi-dori  
Ikuta-ku  
Kobe 650  
(components)

Hirono Sangyo Co. Ltd  
211 Nishiuradate  
Sanjo  
Niigata  
(components)

Ishiguro Kajo Co. Ltd  
473-2, Shimotajima  
Sanjo  
Niigata  
(components)

Maruto Hasegawa Kosakujo Inc.  
1911, Higashihonjoji  
Sanjo  
Niigata  
(components)

Sato Sangyo Co. Ltd  
1299, Higashiuradate

Yashima Fusan Co. Ltd  
45, Hobata-cho, Kita-ku  
Osaka 530  
(importer)

Bando Hardware Co. Ltd  
59, Naniwa-cho, Ikuta-ku  
Kobe 650  
(components)

Y. Iriye & Co. Ltd  
Iriye Bldg.  
76-2, Kyomachi  
Ikuta-ku  
Kobe 650  
(importer)

Three Anchors Kaisha Ltd  
447 Omura  
P.O. Box 77  
Miki-shi  
Hyogo  
(components)

Aigo Kogyo Co. Ltd  
1108, Minamishinbo  
Sanjo  
Niigata  
(components)

Ishiguro Kinzoku Co. Ltd  
1074, Kitashinbo  
Sanjo  
Niigata  
(components)

Kakuri Sangyo Co. Ltd  
3753, 4-chome  
Sakuragicho, Sanjo  
Niigata  
(components)

Ninagawa Naki Seizo Co. Ltd  
2443, Kamitajima  
Sanjo  
Niigata

Shibuya Mfg Co. Ltd  
1273, Nishiosaki  
Sanjo  
Niigata  
(components)

Nanzo Nokogiri Kogyo Co. Ltd  
 2-22, Fukui, 1-chome  
Miki-shi  
 (components)

Miki Kanamono Yushutsu Co. Ltd  
 4-33, Fukui, 1-chome, Miki City  
Hyogo  
 (components)

Shinanomachi Kamako Dogyo Kumiai  
 428-2, Kashiwabara, Shinano-machi  
 Kami-Minochi-gun  
Nagano Pref

Ogurosekoo Co. Ltd  
 2-3-8, Higashi Kanda  
 Chiyodo-ku  
Tokyo

Sanwa Cutlery Co. Ltd  
 3-9-3, Iwamoto-cho  
 Chiyoda-ku  
Tokyo

Top Kogyo Co. Ltd  
 2-624, Tajima  
 Sanjyo-shi  
Niigata-pref  
 (components)

Bessel  
 2-17-25, Fukae-kita  
 Higashinari-ku  
Osaka

Hokuyo Sangyo  
 1825, Higashi Honseiji  
Sanjyo-shi  
 (components)

Fujiwara Sangyo Co. Ltd  
 3-8-61, Suehiro, Miki-shi  
Hyogo-pref.  
 (components)

Kansai San Mfg Co. Ltd  
 15-10, Honmachi, 3-chome  
 Miki-City, Hyogo  
 (components)

Sotokawa Industrial Co. Ltd  
 228, Asahi-machi  
 Himeji City, Hyogo

Nobayashi Gimlet Seisakusho Co. Ltd  
 570-1, Higashi-Noda Bassho-machi  
 Miki City  
Hyogo  
 (components)

Tsumura Gimlet Seisakusho Co. Ltd  
 701-2, Bettusho-machi, Takagi  
 Miki City  
Hyogo  
 (components)

Hokiyama Cutlery Co. Ltd  
 3-15, Sakae-machi  
 Tosayamado-cho, Kami-gun  
 Kochi City  
Kochi Pref

Sanwa Co. Ltd  
 2-10, Fukagawa Shirakawa-cho  
 Koto-ku  
Tokyo

Suzuya Co. Ltd  
 1-35-10, Tomigaya  
 Shibuya-ku  
Tokyo

Nabeya Co. Ltd  
 25, Akasugi-cho  
Gifu-shi

Takarayama Tools Mfg. Co. Ltd  
 1-5, Saiwai-dori  
 Naniwa-ku  
Osaka

Natori Shoji Co. Ltd  
 4-21-8, Asakusa, Taito-ku  
Tokyo

Funaso Co. Ltd  
 3-6-5, Morishita, Koto-ku  
Tokyo

Kanazawa Industrial Co. Ltd  
 7-2, Shibamachi  
 P.O. Box 9  
 Miki-City, Hyogo  
 (components)

Yaka Chemical Industry Co. Ltd  
 1749-2 Matogata  
 Himeiji City, Hyogo  
 (components)

DNC Group (Minode Co. Ltd)  
514, Hachiaji, Yono-shi  
Saitama  
("do-it-yourself" (DIY)  
Merchandising co-operative group)

Nisho Group (DIY Buying group)  
6-21, Kitashinjiku, 1-chome  
Shinjiku-ku  
Tokyo

Daiei (supermarket chain)  
9-1, Toyotsu-cho, Suita-shi  
Osaka

Seiyu (supermarket chain)  
18-21, Minami Ikebukuro, 1-chome  
Toshima-ku  
Tokyo

Ito Yokado (supermarket chain)  
5, Sanban-cho  
Chiyoda-ku  
Tokyo

Jasco  
1, Nishikicho, 1-chome  
Chiyoda-ku  
Tokyo

Nichii  
14, Awaji-cho, 2-chome  
Higashi-ku  
Osaka

3. Trade associations and other sources of information

Japan External Trade Organization  
(JETRO)  
2, Akasaka Aai-cho  
Minato-ku  
Tokyo  
(contact, information)

Miki Chamber of Commerce and Industry  
2-1-18, Honmachi  
Miki-shi  
Hyogo  
(contacts with manufacturers for  
parts)

Sakai Products Association  
Sakai-shi Office, Department of  
Commerce  
3-1, Minami-Kawara-machi  
Sakai-shi  
Osaka  
(contact, information)

Osaka DIY Yohin Shinkokai  
(Osaka DIY articles promotion  
organization)  
Nihon Kanamano Shinbun  
Nagabori Bldg.  
2-6, Andoterahashi-dori  
Minami-ku  
Osaka  
(contact, information)

Miki Rikikoshogu Kogyo Kyodokumiai  
(Miki Artisans' Tools Manufacturers'  
Association)  
1275, Fukui, Miki-shi  
Hyogo  
(contacts for components)

Ono Kanamono Oroshishogyo Kyodokumiai  
(Ono Hardware Wholesalers' Associatio  
Ono Chamber of Commerce and Industry  
2-7-30, Honmachi  
Ono-shi-Hyogo

Hyogo-ken Ono Kanamono Kogyo  
Kyodokumiai  
(Hyogo Hardware Manufacturers'  
Association)  
468, Nishihonmachi  
Ono-shi, Hyogo  
(contacts for components)

Sanjo Chamber of Commerce and Industry  
Sanjo-shi  
Niigata  
(contacts for components)

Annex IProduct definition

The hand-tools and their components covered in this monograph fall under the following Brussels Tariff Nomenclature (BTN) headings: 4/

...

- BTN 82.05 (SITC 695.24, revised 695.41) interchangeable tools for hand-tools or machine tools or power-operated hand-tools

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4/ See Explanatory Notes to the Brussels Nomenclature, Customs Co-operation Council, Brussels.

Annex IIMarket profile

Japan is one of the world's major producers, consumers and exporters of hand-tools. In recent years, with the growing trend towards "Sunday carpentry" or "do-it-yourself", demand for hand-tools at the retail level as well as the demand by hand-tool manufacturers for components has significantly increased. Imports of these items, especially those of medium quality for casual rather than professional use have also risen. The retail turnover trend and projections for this sector are shown below in statistics given for "do-it-yourself" equipment.

Hand-tools <sup>a/</sup>	1972	1973	1974	1975	1976	1977	1978	1979	Index 1979 (1972=100)
Unit Y billion	5.7	7.1	8.3	9.6	11.2	13.0	15.1	16.6	291

Source: JETRO, The Agora, Tokyo.

<sup>a/</sup> Not including auto tools.

Having already increased by nearly 100 per cent from 1972 to 1976, retail turnover for "do-it-yourself" hand-tools is expected to increase by nearly 200 per cent by 1979 as compared to 1972.

Combined, imports of the articles covered in this monograph reached Y 4.5 billion in 1975. The principal suppliers were the United States, Switzerland, Sweden and countries of the European Economic Community. The principal suppliers of wooden handles, however, are developing countries located in the Asian and South East Asian regions.

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c/o Mokko Kaikan  
15-7, Honkomagome, 6-chome  
Bunkyo-ku  
Tokyo

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Lateis Tezukuri Life  
15-9, Haraikata-cho  
Shinjiku-ku  
Tokyo

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2-10, Ueno, 5-chome, Taito-ku  
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Chiyoda-ku  
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Nippon Kanamono Shinbun Sha  
3-12, Soto Kanda, 1-chome  
Chiyoda-ku  
Tokyo



Annex IVMajor trade fairsTokyo International Trade Fair

(April, odd years)

Tokyo International Trade Fair Commission  
4-7-24, Harumi, Chuo-ku  
Tokyo

Osaka International Trade Fair

(April, even years)

Osaka International Trade Fair Commission  
c/o International Hotel, Osaka  
Hashizume-cho  
Uchi-Hommachi-Higashi-ku  
Osaka

Nagoya Hardware Trade Fair

(September, annually)

Nagoya Hardware Trade Fair Association  
1-4-11, Sakae-cho  
Naku-ku

Tokyo Hardware Trade Fair

(September, annually)

Tokyo Hardware Trade Fair Association  
c/o Kanamono Kaikan  
1-11-11, Iwamoto-cho  
Chiyoda-ku  
Tokyo

JAPANESE MANUFACTURERS  
OF ELECTRIC POWER TOOLS

1. MAKITA ELECTRIC WORKS (Makita Denki Seisakusho)

Established: 1938  
 Address: Sumiyoschicho, Anjo City, Aichi Pref. 446  
 Telephone: 05667 (8) 1711  
 President: N. Goto  
 Reference: Tokai Bank  
 Manufacture: Electric power tools

<u>Year</u> <u>End</u> <u>March</u>	<u>Capital</u> (¥ Mil)	<u>Number of</u> <u>Employees</u>	<u>Sales</u> (¥ Mil)	<u>Net</u> <u>Profits</u> (¥ Mil)	<u>Export</u> <u>Ratio</u> (%)
1976	1,839	2,054	29,563	3,333	20
1975	1,594	2,033	13,099	1,494	21
1974	1,380	2,056	15,742	2,226	15

A major manufacturer of electric power tools for woodworking operations. It also sells tools for home use. Expanding share in power tools despite slump of domestic demand by streamlining sales network. Impact of advance of Black & Decker Mfg. of U.S. still is small. Aims at boosting export ratio up to over 30% by increasing overseas business branches. Electric power tools account for about 100% of sales.

2. HITACHI KOKI

Established: 1948  
 Address: Takeda, Katsutacity, Ibaraki Pref. 312  
 Telephone: 0292 (73) 8111  
 President: T. Amimori  
 Reference: Joyo Bank  
 Manufacture: Electric power tools, mini-size motors  
 electronic computers, physical and  
 chemical appliances & mining tools

<u>Year</u> <u>Ends</u> <u>March</u>	<u>Capital</u> (¥ Mil)	<u>Number</u> <u>Employees</u>	<u>Sales</u> (¥ Mil)	<u>Net</u> <u>Profits</u> (¥ Mil)	<u>Export</u> <u>Ratio</u> (%)
1976	1,870	2,652	32,239	464	-
1975	1,870	3,292	27,000	(-)1,200	6
1974	1,870	3,739	16,500	675	4

Vies with Makita Electric Works for top place in electric power tools. Excels in metal working tools. Growth of electric tools market has slowed causing an effect on profits. Endeavoring to increase exports. Electric power tools account for about 80% of sales.

SOURCE: Japan Economic & Company Handbook

LABOR RATES

LABOR/LABOR RATES

Labor rates and the productivity per worker is an important factor in consideration of the location of manufacturing facilities.

An in depth study of labor rates and comparisons with various manufacturing regions of the world is not possible within the scope of this study.

It is important that a labor rate survey be undertaken in a feasibility study, should a particular manufacturer have in mind certain processes for the region.

As of June 15, 1981, the minimum labor wage in Quebec is \$3.85 per hour for a forty four hour week, of course, the actual wages and the average would depend on the labor mix per job classification.

There is an abundance of skilled and unskilled labor in the Province of Quebec, with all of the trades and professions represented.

There is no reason to believe that given equal plant and equipment and proper training if necessary, that the available Quebec labor force can not compete in quality and productivity with other regions.

TRANSPORTATION

TRANSPORTATION

A producer properly located in Quebec near waterway and transportation routes, would have an advantage in freight rates over producers located in Ontario and Westward when servicing the large markets in the Eastern seaboard of the United States.

Example:	Merchandise class 85	Weight 100,000 lbs.
	Montreal to New York	\$16.57 cwt
	Toronto to New York	\$19.86 cwt
	Montreal to Baltimore	\$18.09 cwt
	Toronto to Baltimore	\$20.16 cwt

Servicing the markets of Quebec or Central Canada would be equal for both a Quebec and Ontario producer - since both would be shipping either East or West to similar size markets.

The markets of the West would be an advantage to an Ontario producer, Quebec would probably use "piggy back" rail service.

Reference: Maislin Transport  
Sunac Freight Forwarding  
Chi Can Transport

CURRENCY EXCHANGE



Currency Exchange15/6/81

Quotation : Royal Bank of Canada

CANADIAN FUNDS

Canada		\$1.00
U.S.		\$1.2075
U.K	Pound	2.4175
Germany	DM	.5100
Japan	Yen	.005435

## Note:

For the past six months the U.S. dollar has been growing stronger because of higher interest rates.

It may go to 1.21 - 1.23 Canadian.

If the U. S. dollar weakens to the Canadian, it will be only temporary.

- The Canadian dollar continues to float with the U.S. dollar but lower.

- The era of the Canadian dollar at a premium to the U.S. has ended.

- The Canadian dollar is showing strength (with the U.S. dollar) to European and Japanese currencies.
  
- Canadian products have and will have an advantage in export to the U.S.
  
- This factor should attract European investors and U.S. investors wishing to global mandate from Canada.

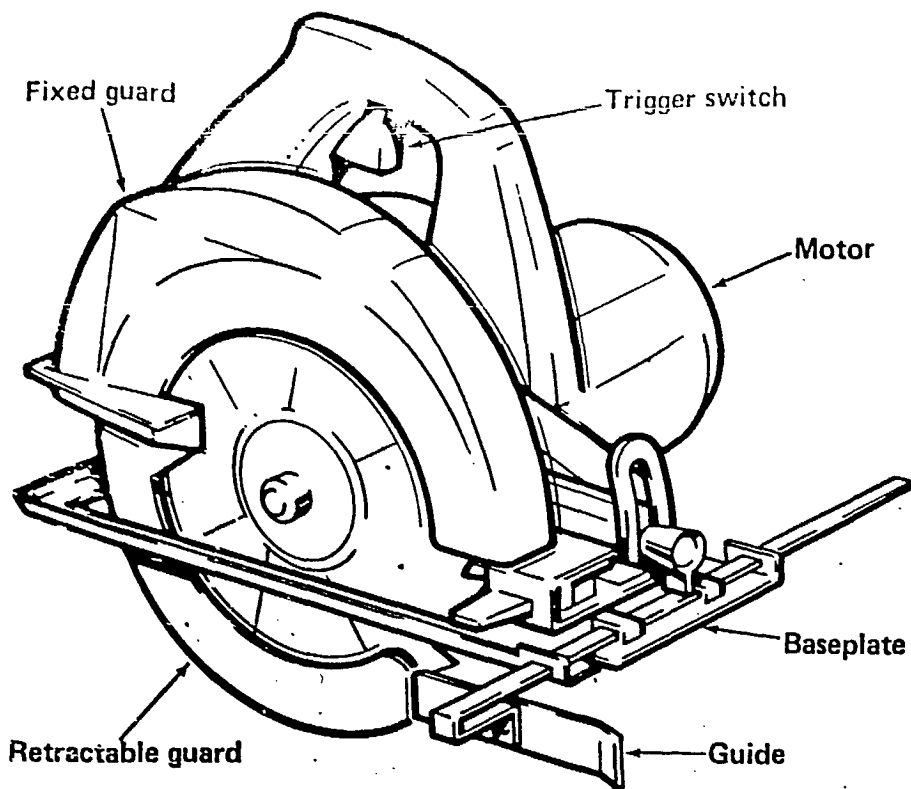
Source: Royal Bank of Canada  
International Trading Department

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Concordia University  
Dismat Inc.  
Guide to Canadian Manufacturers  
Hardware Merchandising  
Hardware, Tool & Cutlery Manufacturers  
and Machine Shops  
Lacroix (Quebec) Inc.  
Mac Lean Hunter Limited  
Marchand Ro-Na Inc.  
Mc Gill University, Department of Buisness  
Morton Research  
New York Public Library  
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The Canadian Hardware Market  
The Canadian Management Centre  
The Stanley Tool Works  
U. S. Department of Commerce  
Skil Mfg. Co.  
Singer Mfg. Co.  
Sores Limited, Quebec

GLOSSARY OF TERMS



## Portable Circular Saws

REMARKS: motor drives circular blades at high rpms -  
mounts a wide variety of blades depending  
upon work application - blade guard is automatic

TYPICAL USES: both trade and crafts tool - most common  
power saw in any shop - widely used for  
cutting lumber - both cross, rip, and  
dimension cuts can be made with right  
blade

PORTABLE CIRCULAR SAWS

The portable circular saw is the powered equivalent of the handsaw. Both are designed to make straight cuts on panels and dimensional stock. These circular saws are known by a variety of names: cutoff saw, utility saw, builder's saw and Skilsaw. The first three names reflect the great popularity of this saw in the construction trade, where its introduction drastically reduced the labor in house building. The last term is actually a trade name that has almost become generic. Skil Corporation was the first to mass market these handy power tools, which will do a wide range of straight cutting tasks in diverse situations.

All circular saws are basically a housed motor turning a circular blade. The upper half of the blade is shielded by a fixed guard. The lower half (the section of the blade that encounters the work) is covered by a retractable guard. This guard swings up when the tool is in use and automatically swings down to cover the blade when sawing is completed. The blade projects through an adjustable part of the saw's frame called a 'baseplate'. You can adjust the baseplate to set the depth of cut. The spinning blade will always be exposed beneath the work, but safety dictates that the blade should project a minimum distance - perhaps as little as  $\frac{1}{4}$  inch. Greatest efficiency, however, is attained when the teeth project far enough so that the bottom of the gullets (spaces between the teeth) clear the work.

When considering a portable circular saw, it must be remembered that blade diameter and motor horsepower are two separate factors. A large blade will bind or burn the wood if the motor cannot spin the blade at the correct cutting speed. For the average user, the most important factor is capacity, which is the thickness of material blade can cut at 90 and 45 degrees.

A common norm is a capacity of at least 2-inch nominal stock at either setting. There are not many saws made today which can't handle this amount.

Quality saws have a wide range of additional features. Some of these features are designed to prevent 'kickback', a constant hazard when using a circular saw. Kickback is the quick and sudden backward movement of the saw toward the operator. This happens when the saw binds in the kerf (cutting groove), as is common during long rip cuts, or encounters a nail or knot in the wood. While many circular saws have some sort of design feature that helps keep the kerf open, better quality saws go a step farther. Some have a safety clutch that helps keep the blade from kicking back by slipping the blade. Others have a safety brake that stops the blade almost instantly when the switch is released. The braking feature is rare on saws with less than a professional classification and a premium price.

#### Attachments

There are a number of attachments available. In addition to wood-cutting blades, circular saw blades are available for cutting masonry and thin metals. 'Rip fences', sometimes called 'edge guides' allow parallel cuts in long stock. Precise miter cuts in most stock can be accomplished with a 'radial cutting attachment' which also helps hold the work. Both of these accessories greatly increase the utility of the circular saw, and make it invaluable in the field or shop.

Circular saw blades are the ones used in portable electric circular saws, as well as on table and radial arm saws. These blades are all similar in shape, the only difference being the diameter of the blade. Several different designs are available - each made to cut with a maximum efficiency in a certain material. Although some blades are more all-purpose than others, it is not advisable to use one blade for every sawing



task. The right blade, used for the cutting task it was designed to do, will produce a superior cut and will retain a sharp edge far longer than a single blade used to do everything.

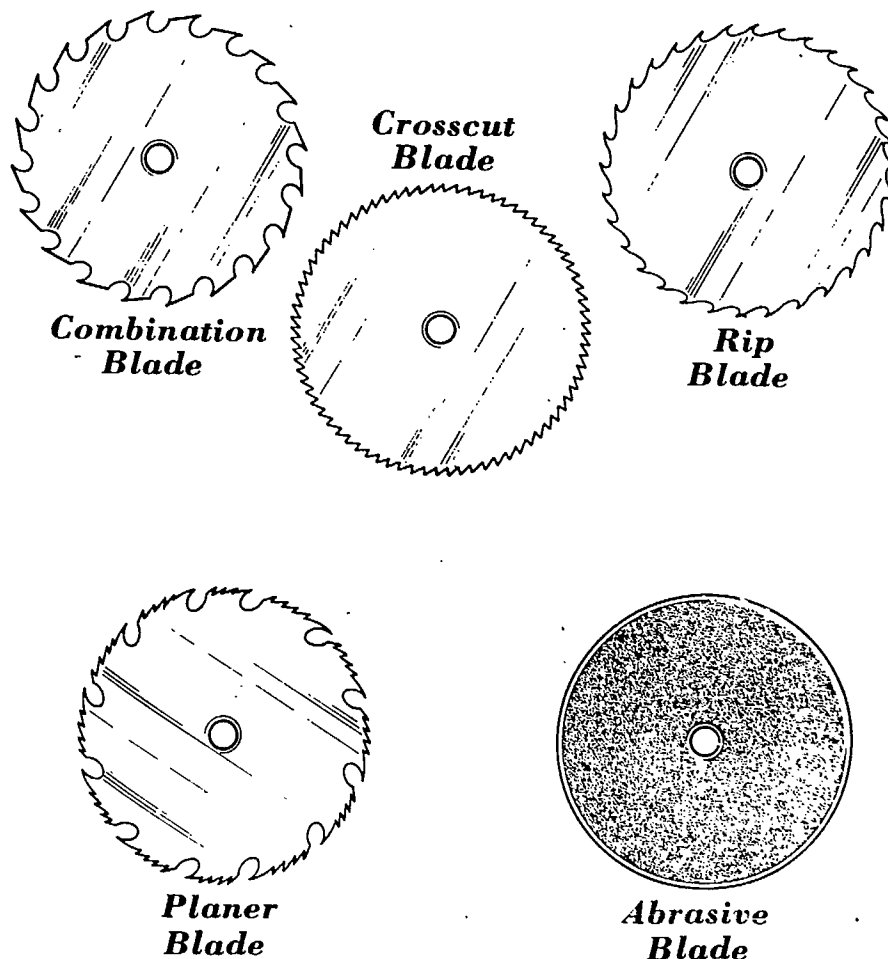
One basic difference in circular blades is how they are designed to provide a clearance for themselves when they are cutting. This is necessary to minimize friction and insure a clean, neat cut without splintering. The object is to cut a kerf or groove formed by the blade that is wider than the gauge or thickness of the blade's body. Two methods are in common use to achieve this aim.

Like handsaws, some blades are designed with a set, with each alternate tooth bent slightly away from the blade's body. Only the cutting teeth contact the work, with the body of the blade running free. Set blades cut fast, but do not leave the smoothest edges. The greater the amount of set and the fewer the number of teeth, the rougher the cut. Edge smoothness improves as the number of teeth increases and the set decreases. Plywood blades, for example, usually have a large number of small teeth and minimum set to avoid splintering this material.

The other way to provide clearance is to hollow-grind the blade. There is no set, but the gauge of the blade body is thinner from the teeth to some middle portion of the blade. This produces a concave area that provides the required clearance resulting in a superior cut. For this reason hollow-ground blades are often termed planer blades. Since there is more production work involved in producing this kind of blade there will also be an increase in price.

Aside from the different means of sharpening the blade teeth, some circular saw blades are available with carbide tips.

The cutting teeth on this kind of blade are faced with tungsten carbide. These blades can be used for crosscutting, ripping, or pocket cuts in just about any wood material. They will also stay sharp despite the abrasive effect of cutting plywood or particle board - notorious destroyers of regular blades. Tungsten carbide is tough, will hold a keen edge for a long time, and blades faced with it will cut almost any material. But it is brittle and must not be abused. Banging it against a hard surface can chip the teeth. These blades should not be used to cut ferrous or hard metals, or in applications where they are likely to encounter buried nails. They are also very expensive, although they will stay sharper and last considerably longer than conventional blades.



Combination crosscut and rip blades are the usual ones provided with the tool. This is the standard blade used in construction work, with a lot of set so that it cuts freely. For quality work the edges of the cut materials have to be smoothed later. A compromise design, these blades will not do so as efficiently as blades designed for these specific purposes. Combination blades are good ones to leave on the saw for all basic sawing procedures.

Crosscut blades have a minimum set and many small, fine teeth. These are the blades to mount in a saw for cutting across the grain of the wood when a smooth edge is an important factor. This blade will do a much better job of cutting plywood than most others because the small amount of set reduces the splintering common with this material. It is not suitable for ripping.

Rip blades are designed for fast cutting with the grain of the wood, and that's about it. They have much larger teeth than a combination blade and deep gullets or spaces between the teeth for fast waste removal. Although rip blades are handy if there is a large amount of ripping to be done, a combination blade also does an acceptable job in this regard. Ripping is made much easier with one of these blades, but the average user can get along without it.

Hollow-ground or planer blades usually have a combination type design and thus are usable for all types of wood cutting. This kind of blade makes the smoothest cuts and should be regarded as the best blade where precision is necessary. Initial sizing cuts should be done with one of the above blades because of the characteristics of the blade manufacture. The slightly concave shape of the hollow-ground blade means that it requires more projection above or below the work surface than other blades.

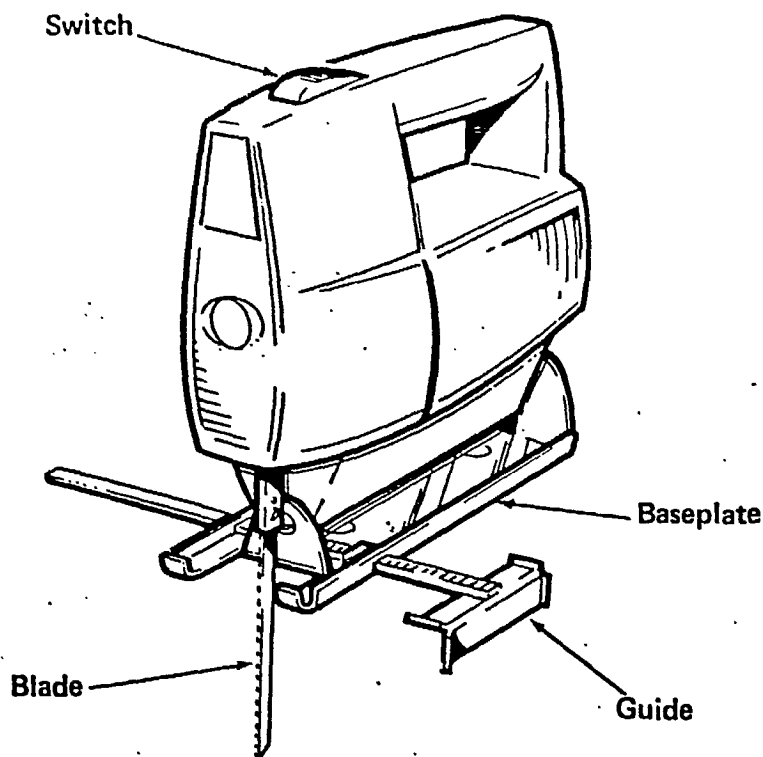
Neglecting to watch this can result in excessive friction, slow cutting, and possible burning of either blade or wood. It is better to use the hollow-ground blade for final assembly work where attention to such details is more important than the amount of wood that is being cut.

Abrasive blades lack teeth, being essentially a metal or fiber disc impregnated with abrasive particles. Masonry, metals and other difficult-to-cut materials are the forte of this kind of circular blade. The hardness of the abrasive bonded to the blade depends upon the material that has to be cut. Which kind to purchase depends upon the job to be done.

In addition to the above blades, there are other designs made for specific cutting tasks. As a general rule they should only be purchased if the job requires it, as they are essentially limited use tools.

Thin-rim blades are so-called because the perimeter of the blade is much thinner than the body. The heavy gauge body provides stability while the thin rim cuts an exceptionally fine kerf. The fine and smooth cut produced by these blades is necessary when cutting fancy and expensive veneers because the design minimizes waste. The depth-of-cut with this circular blade is limited to the width of the thin area. One and a quarter inch or smaller is common, but that is all that is necessary for the work the blade is made to do. This blade would be a virtual requirement for fine furniture work, though it has a limited application for other types of cutting.

Plywood blades are really crosscut blades with a minimum set and a large number of smaller teeth. These are used on plywood because they leave a respectable edge and cut with a minimum of disruption of surface fibers. These blades can be used for general cross-cutting, but are liable to dull rapidly if pressed too hard in everyday work that they are not meant to do.



## Saber Saws

REMARKS:

motor drives a relatively short (4 inches or less) blades in up/down reciprocating motion - disposable blades - no guard

TYPICAL USES:

fine line or contour cutting - cuts both with or across grain - intricate cuts and will follow a small radius - plunge-cutting from center of panel

SABER SAWS

Saber saws, also known as electric handsaws or portable jigsaws, are perhaps the most versatile of any of the portable power saws. They are the motorized equivalents of the traditional compass or keyhole saws, but saber saws are capable of much more than these parent handsaws. Many sawing tasks for which there is a specifically designed tool - rip saw, crosscut saw, compass or keyhole saw, stationary jigsaw and bandsaw - can be done faster and easier with a saber saw. With one you can perform a wide variety of sawing operations. Straight cuts, curves, internal cutouts without a pilot hole (through a technique called 'plunge cutting'), and with the right blade, even metals and other materials can be cut. This power tool will not do everything well, but it is extremely useful for many jobs which would otherwise require many separate saws.

Almost all saber saws operate with the same mechanical action; a short reciprocal stroke provided by an eccentric or cam system. A short blade is fastened into a 'chuck' or gripping collar at the end of the stroke arm. Standard blade size is about 3½ to 4 inches long, though oversize blades are available. The blade teeth point upward, and cutting is only done on the upstroke. This prevents the blade from jumping or chattering by keeping the work snug against the saw's baseplate. Better-quality saber saws usually have an adjustable baseplate to permit a certain amount of level cutting, though this tool is not designed to do this particular job with ease.

One of the saber saw's biggest sales points is plunge cutting. By using this technique, you can start a cut in the center of a panel or board without drilling a pilot hole first. While saber saws have this capability, it's still better to drill a pilot hole and then use the power tool as you would a keyhole or compass saw. Typical saber saws are 5- to 10-pound leightweights and jump around considerably when the entire

tool rests on the front part of the baseplate, as in plunge cutting. This can result in a snapped blade, or even worse, a marred work surface. There is no advantage to cutting a hole quickly if one has to spend an hour cleaning up a marred surface afterwards.

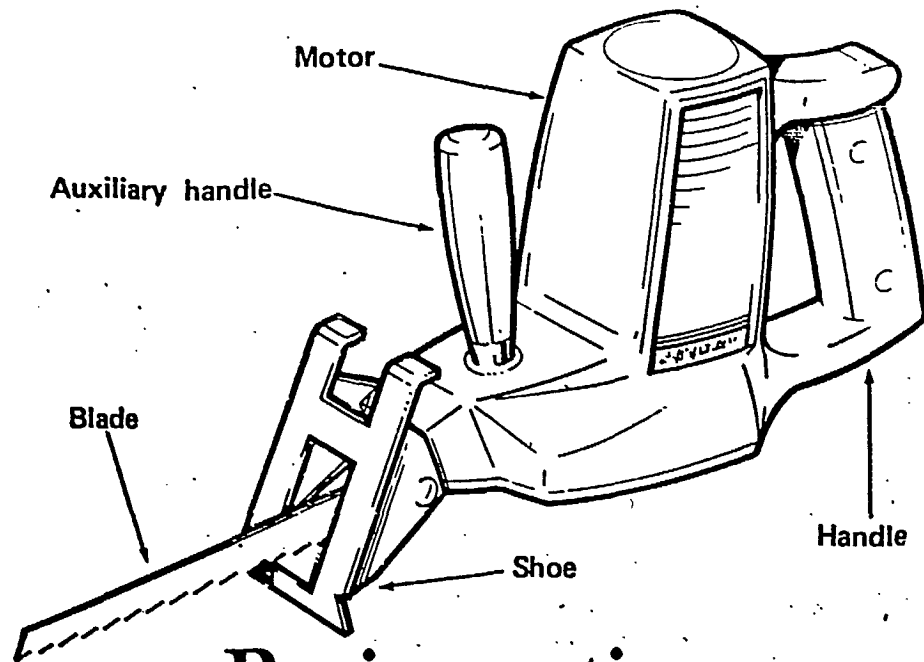
All saber saws can also do scroll work, but a variety are called 'scrollers' or scroll-type saber saws. These saws have an adjustable knob on top of the blade, which lets you turn the blade you cut. Turning tight corners, for example, while working with the baseplate close to a vertical frame member, is considerably simplified. This feature is not expensive, and makes the saw much more versatile.

Saber saws are rated according to several factors, the most important of which is strokes-per-minute or SPM. This is the total number of upstrokes and downstrokes. Of course, cutting strokes are half this number because the saber saw only cuts on upstrokes. Saber saws are offered in single-speed, two-speed, and variable-speed models. Blade speed is important because different materials require a faster or slower cutting action. Single-speed models (3000 to 3400 SPM) are adequate for most woodworking operations. Two-speed models have the same high speed (3400 SPM), and a low speed from 1800 to 2500 SPM. The lower speed gives greater accuracy when cutting thinner materials and when cutting curves. Variable-speed saber saws offer an infinite range up to the highest cutting speed. These are the best saber saws for metal and plastic cutting, which are best done at 1200 to 1700 SPM. Obviously, variable-speed models offer the widest range of application, and are the ones to choose if many varied tasks are to be performed.

The type of blade mounted in the saber saw is as important as the speed at which it works. Blades should be chosen according

to the type and thickness of the material being cut, the intricacy of the cut, and how smooth the final edge should be. Wide blades with few teeth-per-inch (5 to 7 TPI) operate much like crosscut saws, and are best for cutting heavy stock where the quality of the cut's edge is not critical. Narrow blades with 10 TPI or more leave smooth edges and can turn smaller radii. Although they cut more slowly, the quality of the cut is superior. Metal cutting blades are usually 'wave-set' and look much like small hacksaw blades. At slow speeds, they can cut most metals and plastics. Saber saw blades are never resharpened because they are cheap enough to throw away when dull.





## Reciprocating Saws

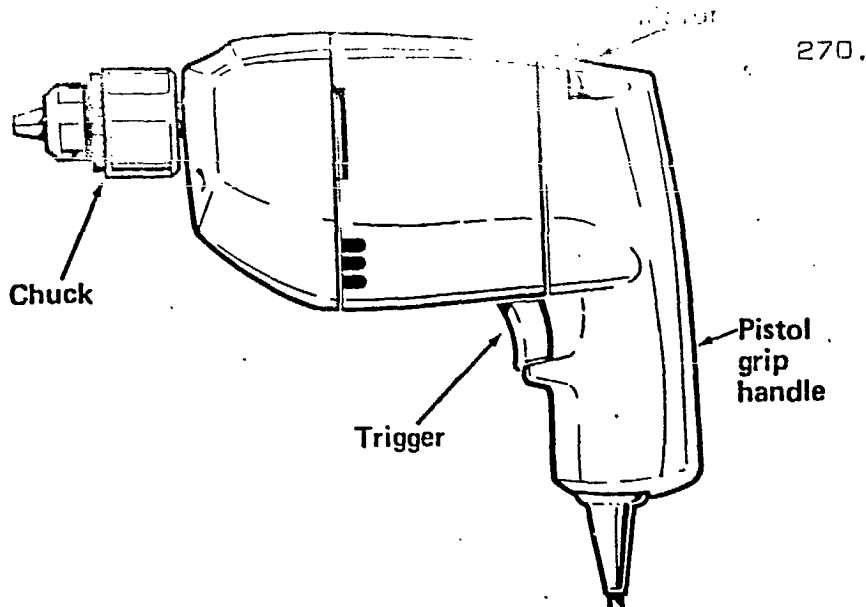
REMARKS: motor drives straight blades up to 12 inches in length - in/out, straight line reciprocating motion - disposable blades - no guard

TYPICAL USES: contractor's tool for use in heavy duty remodeling or repair work - long blades can be used for pruning or cutting firewood - often finds applications in sectioning heavy lumber

RECIPROCATING SAWS

On the power tool family tree, the reciprocating saw is closely related to the traditional compass saw. It is a portable, handheld saw that has a reciprocating blade like that of a saber saw, but the blade movement is horizontal to the motor housing, rather than vertical. Because the reciprocating saw's blade projects from the front of the motor, the tool is sometimes called a bayonet saw.

This is a heavy-duty contractor's tool that's undaunted by heavy construction timbers, steel pipe, conduit, composition materials, plastics and plaster board. It will even cut through a house wall without trouble. Around the house, it is handy for pruning and sectioning small logs. Typical blade sizes range from 3 to 12 inches, and a second handle is provided for a two-handed grip.



## Portable Drill

### CHUCK SIZE:

1/4 inch

CAPACITIES: 1/4 inch in metals, 1/2 inch in wood - smallest of the electric drills - limited range of drilling operations possible - no hammer mode - reversing feature of limited use - highest revolutions per minute, low torque

REMARKS: cheapest of portable drills - good for homeowner use in limited hole-drilling applications - not recommended for extensive use - will drive wire brushes and other auxiliary equipment

3/8 inch

CAPACITIES: 3/8 inch in metals, 3/4 inch in wood - best all around shop size - hammer mode permits drilling in concrete - reversing feature handy for removing screws - midrange in revolutions-per-minute and available torque

REMARKS: middle range in price, but has extensive usefulness in both home and shop - some models will take heavy-duty-use - mounting spade bits in chuck allows for deep, clean hole boring in wood

1/2 inch

CAPACITIES: 1/2 inch in metals, 1 inch in wood - largest of portable drills - hammer mode and different chucks - concrete drilling and other large boring jobs in thick material - low revolutions-per-minute and high torque

REMARKS: highest price of all portable electric drills - contractor's tool used for very heavy duty applications. High torque and auxiliary handles allow accurate and heavy drilling in thick, tough materials

PORTABLE DRILL

If there is one power drill that should be considered a necessity for the home and shop, it is the portable electric drill. It is almost as basic as a saw or hammer and is sometimes more useful than either. This may be hard to understand, since this is basically only a tool for drilling holes. But those who ever worked with a brace-and-bit or eggbeater-type hand drill will appreciate the portable drill's speed at boring holes in wood, metal and composition materials. These jobs can be done with a minimum of time and effort. Also, there are some types of drilling that cannot be done at all on a conventional hand drill or brace - like drilling concrete. Until fairly recently, such tasks were done with a tool called a 'star drill' and a heavy hammer. The end of the star drill was given several sharp blows, after which the drill was rotated, and the procedure continued. This takes a lot of time and work, and eventually results in a black and blue fingernail.

The portable drill is also a convenient power source that can drive a fantastic array of accessories. These range from sanding, polishing, and grinding tools to gadgets for stirring paint or turning screws. Accessory stands hold the drill to make it a miniature piece of stationary equipment, or turn it into a small drill press. An attachment can convert it into a saber saw, a small pump can be added to move water, rotary rasps can be gripped for shaping wood or metal, and there are even sharpening devices for kitchen knives and lawnmowers. So many accessories are available, that it is easy to get confused. And the cost of all these accessories can easily outstrip the original cost of the drill itself.

This tool is a necessity for any shop, no matter how elaborate or well-equipped. This is true even if the portable drill is used in situations where it is more convenient to bring the work to the tool. It is perfect for the woodworker who lacks

space but not interest. Any portable drill and the necessary accessories can be stored in a drawer or on a closet shelf. And it can be used wherever there is an electrical outlet.

The size of an electric drill is determined by the largest diameter bit that can be secured in the drill's chuck, or gripping device. Common models include those 1/4-, 3/8- and 1/2-inch capacities. The size gives a rough indication of the tool's drilling capacity in steel. A 1/4-inch drill, for example, can form holes in steel up to 1/4-inch in diameter. This is doubled in wood, to about 1/2-inch in hardwood. The same formula applies to the two standard drill sizes. A 3/8-inch drill can handle 3/8-inch holes in steel and 3/4-inch holes in wood. A 1/2-inch drill can form holes up to 1/2 inch in steel and about 1 inch in hardwoods. Of course, this formula is only a rough estimate of capacity and power, since drills of the same size may have motors with considerably different power ratings. A tool that can drill a 1/2-inch hole in steel has to be more powerful than one that can only drill a 1/4-inch hole in the same material.

So, chuck size is a general statement, and not meant to indicate that a particular drill can do a particular task. Even a small 1/4-inch drill, with the proper accessories, can have more capabilities than its specifications indicate. Used correctly, with a fine-quality, well-sharpened spade bit, this drill can drill holes up to 1-1/2 inch in diameter in wood. A hole saw can increase this capacity even more. It is possible, however, to overtax a drill by trying to stretch its capacity. A light-duty 1/4-inch drill turning an oversized bit can be abused to the point of failure if the operator applies too much pressure. This will reduce the tool's turning speed excessively, so that the work will not get done or the motor will stall. Small drills are not built to handle this kind of pressure and will quickly show it by overheating - a warning that it is used incorrectly. Occasionally, an underpowered

drill can handle a tough job if the operator applies only enough pressure to keep the cutting tool working. But the contact must be frequently broken between the drill bit and the work to allow the drill to cool down by running without a load. The feed pressure must be applied enough, by bearing down on the tool, to keep the cutter working without overtaxing it. The amount of material the cutter bits removes may be minimal, and the job may take some time. A small drill with moderate rates of speed and feed pressure can sometimes be substituted for a larger capacity drill, but patience is a requirement.

All size electric drills are available in one-speed, two-speed, and variable-speed models. Variable-speed models allow to select any speed up to the highest rpm of which the drill is capable. The speeds provided relate to the general rule: 'Drill small holes at high speed and large holes at slow speed'. Drills with a 1/4-inch chuck capacity have the highest speeds. Those of 1/2-inch capacity have the slowest speeds, and 3/8-inch models span the gap between the two.

'Torque' is the most useful measurement of a drill's power. It is a measurement of the actual turning force used to rotate the drill. Drilling a 1/2-inch hole in steel requires a lot more torque than drilling a 1/4-inch hole in wood. High torque and low speeds are necessary partners in heavy-duty, 1/2-inch drills. These tools operate in low gear, like a car does when climbing a steep hill. If the drill were not geared down this way, it could not do the job.

Single-speed drills are okay for some jobs, but for many they are just a compromise. Such a drill can get most jobs done, but the overall quality usually suffers. The material, hole diameter, and type of cutter can all influence drilling speed.

So, the ability to select the right speed for a particular accessory used in the drill is important. A hole saw, when cutting at a particular speed, may do an excellent job in wood, but barely scrape the surface of metal. Look for adjustable speeds in quality drills of any size.

The speed of a variable-speed drill is usually controlled by depressing a trigger switch. The further the trigger is pressed, the greater the speed. Some tools have a preset speed control that can be adjust to limit how far back the trigger switch can be depressed. This is a convenience when a certain speed is used for a long period of time. Ordinarily, this control is a small button, mounted on the shaft that passes through the trigger. The correct speed is set by turning the button to a set point. This prevents the trigger from being depressed further.

Another interesting feature becoming common on portable drills is 'reversing' - the ability to change the direction of the drill's rotation. This by way of a sliding switch. The reversing feature is a noticeable advantage with a variable-speed drill, because it allows to remove as well as drive screws, using the proper bit. It also allows loosen drill bits easily if they jam in a hole. However, this reversing feature is often overplayed as a sales point, with claims that wire brushes and other accessories will last longer if their working rotation is reversed occasionally. Running a drill bit in the opposite direction for any length of time will destroy it. And the only value to a reversing switch is for removing screws or removing an occasional jammed bit.

Lock buttons allows lock the trigger switch and not depress it continually. This feature reduces operator fatigue, and permits to pay more attention to the work at hand. The lock is released by merely pressing the trigger switch again. Locks are also very useful when the entire drill is mounted in a stand for use as a stationary tool.

Many models of all sizes come with an extra handle or offer one as an option. This is most important when using large, heavy-duty tools, since they afford much better control. The fact that they can usually be mounted on either side of the drill is appreciated by lefties.

Cordless, battery-powered drills have invaded the market recently, and they free from the need of a nearby electrical outlet. These drills are available in 1/4- and 3/8-inch sizes. They vary in speeds available, power, and the amount of work they can do before recharging. Cordless drills should be considered only light-duty tools - good enough for driving screws or drilling holes, but not sturdy enough for a wide variety of accessories. Some heavy-duty models are made, but these are specialized tools and should only be chosen for jobs that warrant their expense and heavy weight.

To make a choice between the various sizes of drills workscope must be considered. A 1/4-inch drill is not a bad choice for the homeowner who wants an inexpensive tool for lightweight chores. It drills small holes, removes scaled paint from wrought iron, and even mix paint. It is a good tool as long as its limitations are accepted.

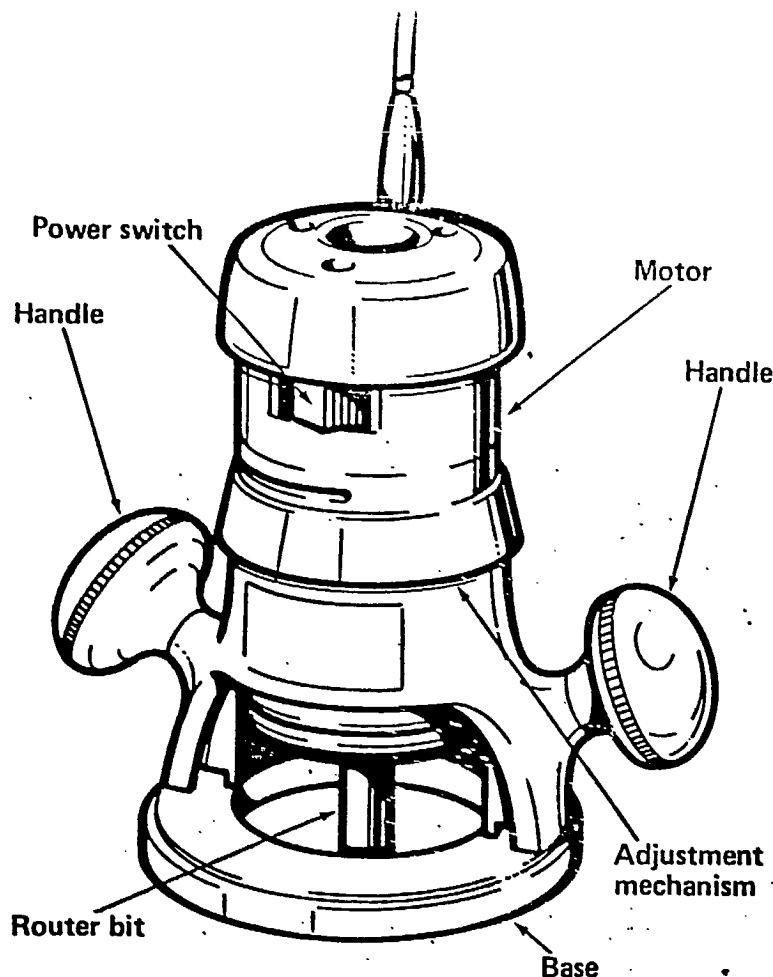
A 3/8-inch drill, especially a variable-speed model, is the best choice for home maintenance and the small shop. It has enough power for most jobs and is more suitable as a drive source for accessories. This drill can do anything a 1/4-inch model can do, and with a minimum of time and trouble.

The 1/2-inch drill is a borderline tool for the homeowner and small shop owner. Most buyers of this tool do lots of construction and remodeling work. Power varies, but they can be had with 3/4-hp and more. Typical applications are drilling large holes in concrete, brick, and steel; forming access



holes in framing members for plumbing, and cutting vents in a wall. The average woodworker will not find the 1/2-inch drill very useful unless he contemplates this kind of work.

A good 3/8-inch drill can easily compete with 1/2-inch models in the lower horsepower range. So, it is the best choice for average use. Many woodworking enthusiasts equip their shops with both a 1/4- and 3/8-inch drill, which prepares them for 99 percent of the work they are likely to encounter. This course is feasible today, because while drill features have increases, prices have gone down considerably.



## Portable Routers

The router is a very versatile tool. It can form any decorative edge, as well as practical ones like those required for drop-leaf table joint. Dadoes, grooves, rabbets, and the more-complicated joint forms like the mortise-tenon can all be made with this tool. With the proper template, it can even make a dovetail joint. Routers incise and carve, cut circles, pierce, trim out plastic laminates and form cutouts for electrical outlets in wallboard or paneling.

For all its versatility, the router is a simple machine. It is no more than a vertically mounted motor whose rotating shaft ends in a chuck that grips a variety of cutting tools. The motor sits on a base that keeps it in a vertical position, and this base can be adjusted up and down to control the amount the cutter protrudes. This motor turns at high speeds approaching 30,000 rpm, which accounts for the router's exceptionally smooth cuts across the grain of wood.

The method used to control the motor's vertical adjustment can vary between tools. One common system incorporates a helical action that works like a screw thread. The motor threads into the base. Turning the motor clockwise lowers it and the attached chuck and cutter. Turning the motor in the opposite direction raises the cutter and motor.

Another system has a rack-and-pinion arrangement. The motor has a rack that is affixed to the base. An external knob turns the gear and racks the motor up and down. In many cases, the housing that encases this mechanism has a built-in scale that gives you a direct read-out of depth-of-cut adjustments. Regardless of the vertical adjustment system, there is always a lock or handle that secures the motor's position. The precision and positive locking of this vertical adjustment mechanism is critical to the function of the router. It must operate positively, smoothly, and lock in place once it is in the correct position. Any looseness here is a reason to pass up the machine.

The chuck fixed to the end of the shaft is of the collet type. Turning a threaded collar with a wrench causes the collet to grip the shaft of the inserted cutting tool. Some tools require two wrenches - one to turn the collar, and another to prevent the shaft from turning. There are some routers on the market that have a built-in device to lock the shaft. This

makes adjustments easier. The ability of the collet to grip the cutter is of critical importance. It should grip firmly, without slipping.

Two handles are always attached to the base of the tool. These range from simple knobs to fancy pistol grips, but they should offer a secure grip for moving the tool around. Some pistol-grip types have a built-in on-off switch with a lock. This permits the switch in the 'on' position, yet turns the machine off quickly by pressing the trigger again. The arrangement is an advantage since the machine can be stopped without releasing one of the handles.

All router bases accept an 'edge guide'. This is an adjustable fence that guides the router when making parallel cuts along an edge. This guide can be used for other purposes, among which is cutting perfect circles by pivoting the machine on the guide. These guides are either standard equipment or are available as extra-cost accessories.

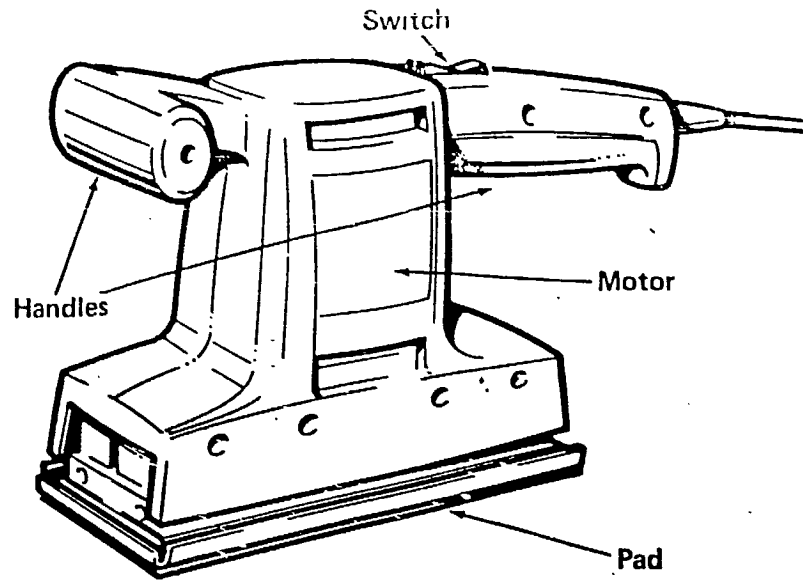
The size of a router is usually described by the horsepower of its motor. There is little difference in physical size between a light- and heavy-duty tool, but there is a difference in weight. A 1/2-hp router, for example, may weigh in at 5 or 6 pounds, while a 1-hp machine can be 3 to 4 pounds heavier.

A 1/2-hp or lighter motor usually puts a router in the light-duty category, while machines with motors of 3/4-hp or better are heavy-duty models. If a router is used only occasionally, a light-duty machine is sufficient. It can do almost any job the heavier machines can, but it takes more time to make the cuts. A heavy-duty router can often form a good-sized dado in a single pass, while the lighter tools usually require two or three progressively deeper cuts.

Heavy-duty routers can stand up to consistent, full-function use which would overtax a lighter machine. Routers have their own way of indicating abuse. If the cutter slows up excessively, stalls, overheats, or if it takes a lot of pressure to keep it cutting, the machine is trying to tell something. The construction of a router has a lot to do with its efficiency and durability.

Total ball-bearing construction, for instance, usually indicates a good quality tool, as does solid heft and feel. If the machine is designed and made well, it will take a lot of punishment without complaining.

Most routers have a standard collet capacity. All routers grip cutters with 1/4-inch shaft diameters, the normal size for router bits, although some industrial models accept 3/8- or 1/2-inch collets on their motor shaft. All the tools and cutters used with a router are available with 1/4-inch diameter shanks, so the 1/4-inch collet capacity of standard routers does not limit workscope.



## Pad Sanders

REMARKS:

mounts square cut from single sheet of standard sandpaper - orbital or straight line action - pads replaceable according to hardness desired in job

TYPICAL USES:

final surface finish prior to application of stain/varnish - sanding between surface coats - satin brush finish on metals

PAD SANDERS

The pad sander is often called an 'orbital' sander or a 'finishing' sander because it is the only type of powered smoothing tool that can produce a glass-like, satiny surface on wood. It is designed to move sandpaper that is stretched taut over a flat, resilient pad of material, usually rubber or felt.

Too often a sander is judged solely on the speed with which it can remove material. Even a pad sander if fitted with a coarse abrasive, can exhibit good sanding speed. The more important criteria for a pad sander is the quality and smoothness of the finished surface. This sander is the one to use to make the final touchup before the application of finish material like stain or varnish.

There are several varieties of pad sanders. 'Orbital' sanders move the pad in tiny circles. 'Straight-line' sanders move the pad in a back-and-forth movement. Some units are designed so that they can work either way. Since sanding with the grain produces the best results, the straight-line action is usually recommended for the finest finishes. The orbital action results in faster wood removal. Swirl marks - circular scratches left by an orbital action - are obvious when a coarse abrasive is fitted on the pad and the tool is moved very slowly. Any good sander can give a smooth finish, but sanding with the grain is necessary for top-grade work.

A multiple-action sander does offer some options. Coarse abrasives with an orbital motion result in fast stock removal. Straight-line action and fine abrasives will result in a fine surface.

All pad sanders come equipped with a soft pad mounted on the

bottom of the tool. This is usually either a third or quarter of the size of a standard 9 x 12-inch sheet of abrasive. The pad has just the right degree of flexibility for average work but because different wood species have different characteristics, it may not be the best backing for the abrasive. A grain pattern, for example, that has hard and soft areas will have more wood removed from the soft areas if a soft pad is used. The soft pad conforms to the softer areas and produces a wavy surface that one can actually feel. In this kind of situation, it is better to switch to a harder pad or slip a piece of thin hardboard between the pad and the abrasive. This enables the pad to span the gap across the grain and take hard and soft parts of the wood down together.

On the other hand, a pad is sometimes needed that is even softer than the one that comes with the machine. Softer pads are useful for sanding contours, columns, and dowels. One successful improvisation is to use a piece of rug or foam rubber as a backing material in the pad, or a softer pad can be purchased.

All pad sanders have a means of fastening the sandpaper over the pad and holding it taut. A loose abrasive reduces sanding efficiency, and if really loose, the pad will just rub the paper a little and accomplish nothing. Methods for mounting the paper vary with the manufacturer. One method uses pressure rollers on either side of the pad. The paper is placed under one roller, stretched taut against the pad, and the opposite end placed under the second roller. Then a screwdriver is used to turn the roller to make sure the paper is held firmly. Another common method incorporates spring-powered clips, somewhat like those found on clipboards to hold paper. Place one end of the sandpaper under one clip, pull the paper taut, and place it under the second clip. Both methods of paper attachment work, but the roller type is more convenient and



allows for a certain degree of adjustment after the paper is in place. What matters most is that the paper is held taut.

The dust created by the sander can be a health hazard, however. Some of the more costly units come with dust-collection equipment, otherwise it is optional.

BASIC DEFINITIONS

CHANNELS OF SALE OR DISTRIBUTION

COMPANY DIRECT	Branch Office Sales Office Distribution Center Company-owned Sales Outlet
COMMISSION MIDDLEMEN	Manufacturers Representative or Agent Master Representative Stocking Representative Selling Agent Broker
MERCHANT MIDDLEMEN	Merchant Wholesale (Distributor, Jobber) Full Line or General Line Wholesaler Limited or Selected Line Wholesaler Specialty Wholesaler Industry Specialized Distributor Rack Jobbers or Merchandiser Dealer

Industrial goods producers may select from a number of alternative channels or 'marketing institutions' in determining the way to sell or distribute their products. These alternatives tend to fall into three basic classifications: (1) Company Direct with the company owning branches, sales offices or other types of selling outlets, (2) Commission Middlemen who essentially arrange a sale on behalf of a manufacturer they represent or a purchase on behalf of a buyer they represent and are compensated solely by a commission, and (3) Merchant Middlemen who, unlike Commission Middlemen, take title to the goods they sell and usually establish their own terms of sale, and extend credit. Basically, they cover their costs and turn a profit by buying in large quantities at substantial discounts and re-selling in smaller quantities at higher prices.

COMPANY DIRECT

Branch Offices: Company-owned branches usually serve as headquarters from which a territorial captive (company employee) sales force operates. Branches also usually carry some stock of merchandise from which orders may be filled directly. Companies with technical or industrial products may incorporate display or demonstration facilities and equipment and a parts and service center in their branch offices.

Sales Offices: Sales offices generally serve only as a base from which the sales force operates; they do not carry stock nor include a service facility. Companies that establish sales offices usually have products that are consumed on a large scale and over a wide area.

Distribution Centers: A Distribution Center usually carries large stocks of inventory from which further distribution is made to Company Direct, Commission Middlemen or Merchant Middlemen channels. Distribution Centers are located strategically according to the distribution patterns of the marketplace. The Center may be a warehouse only or it may house all or any combination of distribution functions of the company. It may act, for example, as a company regional sales office to which several branches report or as a sales office for the specific area in which the Distribution Center is located. It may also have facilities for service and demonstration.

Company-Owned Sales Outlets: In carrying out a policy of vertical integration, some companies have established their own sales outlets. This affords a high degree of control from product development through production and final sale to the ultimate purchaser. The sales outlet may be a retail store, a wholesale distributor or an open-door wholesale house. The company may operate the outlet under its own or another name.

COMMISSION MIDDLEMEN

Manufacturers Representative or Agent: A Manufacturers Representative or Agent is closely allied in character and function to a company salesman, but is an independent individual or firm. An independent representative maintains a continuous contractual relationship with two or more manu-

facturers, commonly called suppliers or principals. The lines of the various suppliers he represents are noncompetitive and should be complementary. He usually sells these products in a limited territory on an exclusive basis. A conventional representative does not take title to nor possession of the goods. His role is confined to soliciting orders, and he refers all orders to his principal for acceptance or rejection as he has no authority to make commitments in behalf of a principal. The manufacturer extends credit, ships and invoices the customers, The principal pays the Representative a commission after the customer remits on the invoice.

Master Representative: This type of Commission Middlemen operates similarly to a Manufacturers Representative or Agent, but on a national or regional scale. He enters into contractual agreements with additional independent sub-reps to assure adequate local sales coverage. The Master Representative performs a variety of sales management functions ranging from the equivalent of a regional field sales manager up to the role of many company general sales managers.

Stocking Representative: A Stocking Representative actually takes physical possession of some or all of the goods he sells. The goods are usually consigned and owned by the manufacturer who also bills and collects. The Representative, however, delivers partial or complete shipments out of his stock. This has proved to be a useful arrangement for certain products that by their nature require timely delivery, or when customers are located a considerable distance from the factory. For warehousing and delivery, the Stocking Representative receives added commission.

Selling Agent: The Selling Agent possesses broader powers than the Manufacturers Agent. He sells the entire output of the manufacturers whom he represents. He is usually permitted to exercise considerable discretion in matters of pricing and establishing terms of sale, and he is not limited to the territory in which he is based. A Selling Agent frequently finances his principals and gives aid in advertising and sales promotion activities. The relationship with the manufacturer is continuous and is customarily established by a written contract. Generally, Selling Agents operate on a national or international basis.

Broker: A Broker takes neither title to nor possession of goods. His primary services to his principal are to negotiate sales - to bring seller and buyer together - and to

furnish his principals information regarding market conditions. Normally, brokers do not handle invoices or finance either principal or customer. Manufacturers who make use of brokers generally limit the broker's powers as to prices and terms and require approval prior to the broker's entering into a bona fide transaction. A broker usually specializes in specific lines of commodities. He does not as a rule operate continuously for a particular set of clients but offers his services to all who may desire them.

#### MERCHANT MIDDLEMEN

Merchant Wholesaler (Distributor, Jobber): Merchant Wholesalers are middlemen who are primarily engaged in buying, taking title to and physically handling and storing the goods they sell. They may be broadly divided into two groups: Service and Limited-Function Wholesalers. Service Wholesalers usually carry quite complete stocks within their lines, use salesmen to call on their customers, extend credit, make delivery and perform other services. In contrast are such wholesalers as truck or wagon distributors and cash-and-carry wholesalers; these are designated as Limited-Function because they, for example, carry limited stocks and extend a minimum amount of credit. A 'Jobber' is different only in size, usually being smaller than a 'Distributor'.

Full or General Line Wholesaler: A Full or General Line Wholesaler is one whose entire organization - purchasing, sales, service and finance - is geared to stocking, selling and giving service on all items within a broad product field used in his trading area. He deals with many different suppliers for all of his major lines, many of which are in direct competition with one another. For example, he might handle products of 600 suppliers and have 30 in one product area. Quite commonly not all lines are completely stocked.

Limited or Selected Line Wholesaler: A Merchant Middleman of this type restricts the number of lines he stocks and sells (typically 20-40) and handles generally non-competitive, complementary products. He stocks completely every item in these lines and concentrates his relatively aggressive sales efforts on getting all of his customers' business for each of the relatively narrow range of items he carries. Limited Line Wholesalers usually stock in much greater

breadth and depth than Full Line Wholesalers; they also develop more knowledge of and closer ties with the manufacturers of the products they sell.

Specialty Wholesaler: A Specialty Wholesaler gears his stock, organizational setup and selling effort to the distribution of every available make or brand of one or two broad product lines. 'Specialty' implies intensive technical knowledge of the product line or lines handled, plus a broad familiarity with the applications and use of the products in his trading area. He stocks every available type and make of the same product, resulting in a number of products that compete with one another.

Industry Specialized Distributor: This type of Merchant Middleman selects his product lines especially for and sells to customers in a given class or type of industry and specializes in lines that may be unique to the industry he serves. Examples are plumbing wholesalers, electrical wholesalers, medical equipment distributors, and optical supply houses. A specialty distributor may operate in any of the modes described above; for example, as a Full-Line or Limited-Line Merchant Middleman.

Rack Jobber or Merchandiser: A Rack Jobber or Merchandiser is a Limited-Function Merchant Middleman who evolved with the sale of nonfood items in food stores. He traditionally specializes in servicing items such as housewares, drungs and hardware, but more recently has become active in many technical/industrial fields such as electronics and computer accessories. The sales outlet he services provides the necessary space for proper display of the merchandise. The Rack Jobber supplies the goods, sets up the display racks and keeps them filled. He usually receives pay only for the goods actually sold as evidenced by replacement needs; thus, the store has its inventory on a consignment basis.

Dealer: Dealers sell to many customers, usually in very small quantities. They frequently purchase goods from distributors rather than directly from manufacturers. From the viewpoint of their customers, dealers offer the advantage of convenience because of location and quick service. While, typically, 'dealers' are thought of as retail stores, many 'wholesalers' or 'distributors' freely sell to individuals for their own personal use as end consumers. Thus, a significant volume of some industrial products (e.g. electronic parts and components) are actually sold at retail through 'wholesale distributors'.

