

ASSESSMENT OF OPPORTUNITIES FOR  
DIESEL ENGINE MANUFACTURING IN CANADA

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1973

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Department of Regional  
Economic Expansion

January 1973





PLEASE NOTE

This report has been edited, where necessary, to remove comments and data that are classed as confidential. In the interest of efficiency, this has been done by simply removing small sections of the report. As a consequence, there are some blank spots which, we hope, will not interfere with the readability of the report.

Department of Regional Economic Expansion

ASSESSMENT OF OPPORTUNITIES FOR  
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I - CONCLUSIONS

Under the existing tariff structure in Canada as it affects diesel engines, particularly the Canada-US Auto Pact and the British Preferential tariff, it is highly unlikely that a British, European, or American manufacturer of diesel engines will choose to instal a facility in Canada, the British and Americans because no advantage would be gained, the Europeans because they must establish a strong sales base before establishing a facility, and they will be unable to do so while carrying a 15 per cent price disadvantage vis-a-vis U.S. and British manufacturers. However, if, as seems likely, the Canada-U.S. Auto Pact or the British Preferential Tariff should be changed over the next five years, then it is possible that a tariff which would encourage diesel engine manufacture in Canada could be devised, with all manufacturers, from no matter what country, starting on an even footing.

On the assumption that such a tariff structure can be devised, without the imposition of retaliatory measures by the USA, then it is likely that a diesel manufacturer would be interested in erecting a production facility in Canada. Taken in conjunction, the size of primary and secondary markets would appear to justify such a move, but detailed examination of the relevant market segments would be necessary to determine optimum range and configuration, consistent with adequate production runs and commonality of components.

Size of production run will almost certainly preclude the complete manufacture of diesel engines in Canada, but an assembly facility appears feasible. Such an assembly operation will have wider latitude as to location, and it is probable that such a plant could be induced under the terms of the RDIA in Winnipeg, Manitoba, Saint John, New Brunswick or Halifax, Nova Scotia.

Of the two locations previously mentioned in the Maritimes, the Saint John location is to be preferred, because the plant would mesh perfectly with the Multiplex project in Saint John, and thereby both projects could be made stronger. In particular, if Multiplex is brought to fruition, the foundry would be an ideal supplier to the diesel plant, and in purchasing from this source, the foundry is strengthened, and parts procurement problems for the assembly facility are diminished.

### III - THE MARKET

#### THE PRODUCT

A diesel engine, for the purpose of this survey, is considered to be a reciprocating engine of one or more cylinders, operating on the diesel cycle, with compression ignition. It may be 2- or 4-stroke, and may be normally aspirated via fuel injection, or either supercharged or turbocharged. It will use diesel oil as a fuel or some cheaper distillate.

#### SIZE OF ENGINES

During the course of the study, we have confined our investigations to engines generating between 10 to 500 hp, which will account for the vast majority of engines manufactured in terms of numbers.

The market as a whole is distinctly stratified by the power of the engine, which is normally specified in bhp. Some typical uses of engines in particular power ranges are as follows:

- 5 - 25 hp - small portable pumps, compressors, generators, construction machinery, and light industrial applications
- 25 - 90 hp - agricultural equipment, some automobiles, construction machinery, light commercial trucks
- 90 - 150-hp - heavy agricultural tractors, medium commercial vehicles, light bulldozers, etc.
- 150 - 275 hp - heavy commercial trucks, earthmoving, light generating units (standby and emergency).



275 - 500 hp - heavy industrial compressors, heavy earthmovers, industrial trucks and loaders, stationary applications.

### Type of Engines

In all of the above size classifications, diesel engines are to be found of one of the three main types, industrial, automotive, or marine.

Industrial engines are designed to operate for maximum economy, and as such, normally operate at a particular fixed speed and load. Because these two factors are constant, a simple type of fuel delivery system can be utilized to cut cost, and the absence of variable and shock loads prolongs the life of the engine. Typical uses would be compressors, pumps, generator sets, etc.

Automotive engines are designed to operate over a wide range of speed and load, and thus require sophisticated, expensive fuel delivery systems. Moreover, the variable speed and load capability results in reduced life. In addition, the automotive engine must operate over a wide ambient temperature range, which necessitates a sometimes elaborate cooling system.

Marine Engines are normally engines that can be designed to operate over a restricted speed and load range, or a wide speed and load range, as either of the above. However, they will often have to be modified to accept sea water as a cooling medium, with a corrosive environment in the engine compartment due to sea air. Thus, the cooling passages and exterior equipment will need expensive extra treatment.

Semi-diesels. We have been unable to satisfactorily define either from trade or Government, the term semi-diesel. No manufacturers have any knowledge of such an engine in general use, and it is therefore assumed that the description refers to a diesel using a fuel other than diesel oil or a cheaper distillate. In this case, a diesel engine utilizing gasoline would appear to negate the major justification of a diesel engine - reduction in fuel costs. The other possibility for a "semi-diesel" would appear to be a liquified petroleum gas, and on both these bases, the market would appear to be extremely small to non-existent. We will therefore ignore it for the purposes of this study. -

#### THE CANADIAN MARKET

The Canadian market for diesel engines is a typical market for diesel engines in that there is a primary and a secondary market. The primary market is that market for diesel engines which is currently supplied by separate diesel engines imported into Canada. However, this figure is relatively small as a component of the total market for diesel engines, which includes industrial equipment imported into Canada already containing or utilizing a diesel engine. This fact is quantified in this report.

#### Existing Canadian Production

Only one Canadian manufacturer of diesel engines is known to exist, namely MLW (Montreal Locomotive Works). This company produces diesels for railroad locomotives of a minimum 1,000 hp, and therefore,

for the purposes of this study, no domestic manufacture exists, and all units are imported.

#### Imports

Imports of diesel engines into Canada by type from 1961 to the first half of 1972 are shown in the Appendix, pages A and B. It should be noted from these figures that the market has grown from 6,356 units in 1961 to 19,550 units in 1971, an increase of 308 per cent, while the value of imports has risen from \$16,276,000 to \$60,296,000, an increase in value of 371 per cent. The average annual rate of growth in value over the period was 10.7 per cent on a compound basis.

It should be noted that whatever the type of diesel, the U.S. is the major source of imports, with the U.K. second. Substitution of these imports is the primary market for Canadian produced diesel engines, and in the last complete year for which data was available, this market amounted to 19,550 units valued at \$60,296,000.

Detailed breakdowns by hp within each type of diesel are unavailable.

These imported diesel engines are utilized to supply domestic manufacturers of equipment, this equipment being either sold in Canada or exported. Appendix C shows the industries consuming diesel engines, and, where possible, notes the number of units produced. We do not make the claim that this equipment all uses diesel engines, but merely that it is capable of using diesel engines.

It will be noted that this market has declined from 114,607 units in 1967 to 85,274 units in 1970, a decline of 25.5 per cent in units, while value has decreased from \$585,834,000 to \$560,871,000 over the same period, a decline of 4.75 per cent. However, in 1971, and 1972 growth of production is expected to have accelerated quite sharply, with more acceleration into 1973.

The supply and demand in the primary diesel market has thus been delineated, and the secondary market will now be described to give some indication of the potential of the market.

Details of imports of equipment utilizing diesel engines almost entirely are appended, Appendix D for all countries, and E for the United States only. In addition, details of equipment partially utilizing diesel engines are shown in Appendix F for all countries, Appendix G for the United States, and Appendix H for the United Kingdom. The total value of both of these categories from all countries is shown at the bottom of Appendix D.

Again, from Appendix E, the predominance of the U.S. as a source of diesel-engined equipment is very apparent, while the U.S. and the U.K. are both large suppliers of equipment partially utilizing diesel engines, with the U.S. being the stronger of the two.

#### Exports

Insofar as there is no manufacture of diesel engines in Canada of the defined power range, then any engines exported must be either too powerful to be of interest, or they must be re-exports. Therefore, no

useful purpose is served by an examination of diesel engine exports.

However, an examine of exports of equipment which could utilize diesel engines is useful, because even if all the equipment is a re-export, the fact that it was in Canada for a period of time means that, were a Canadian manufacturer of diesel engines to exist, there is a possibility that his engines could be built into the equipment exported. As such, the numbers and value of exports is an indicator of market potential.

Statistics relating to exports of equipment utilizing diesel engines from 1967 to the first half of 1972 are therefore appended for all countries (Appendix J) and the U.S. (Appendix K). The summary at the bottom of Appendix K gives a positive statement of the importance of the U.S. as a customer.

Over the years 1967 to 1971, the number of units exported declined, due mainly to the removal of snowmobiles from the category Motor Vehicles NES commencing in 1970. In spite of this major removal (amounting to approximately \$120 million) the value of exports to the U.S. has not decreased over the period, for the products being examined. Therefore, it is clear that equipment more allied to the diesel engine power source has increased by \$120 million over a two-year period.

Total

Since the figures quoted for domestic production include those units produced for export, and because all are manufactured in Canada,

then the figure for domestic production of all machinery and equipment which could utilize diesel engines must represent the potential primary market, while imports of machinery and equipment containing some or mainly diesel engines constitutes a possible secondary market.

#### Consumption Growth

Because the market is supplied wholly by imported engines, then imports will reflect the growth of consumption. The growth of imports are shown graphically by type in terms of units and value in the appendices, L and M respectively. As would be expected, the consumption, as a component of capital expenditures on equipment, closely follows actual expenditures, demonstrated in Appendix N. Capital expenditures in turn are closely dependent upon the expectations of business and its confidence in the underlying economic condition of the country, now and in the immediate future.

Business confidence and the state of the economy may be gauged from future plans for capital expenditure, and some indications of future growth of consumption can thus be obtained.

Historical growth of consumption from 1961 to 1971 on a compound basis has been 10.7 per cent per year.

#### PROJECTIONS OF MARKET GROWTH

On the basis of the above, then we expect that consumption of diesel engines by the primary market will react over the next five years



with a 12 per cent annual increase in sales. This implies sales of approximately \$100 million by the end of 1977.

These sales projections are based on two concurrent, converging trends in Canada, as follows:

1. Expectations for future growth of the Canadian economy are extremely optimistic, and it is felt that the Canadian economy is now in the boom stage. As a consequence, companies are investing heavily in capital equipment.
2. Diesel engines are not so near the end of their useful development life as are gasoline burning spark ignition engines. Moreover, they are inherently less polluting than gasoline engines. As the cost of pollution control devices is added to the existing cost of gasoline engines, the diesel becomes more and more attractive as a power source, as it needs less control equipment. Moreover, the life of a diesel engine is longer, it is more economic to operate, and future emission requirements are expected to be met with relative ease. This fact is expected to result in an increase of diesel installations in light and medium duty commercial vehicles, including the replacement of existing engines.

Thus, over the next five years, the high rate of annual sales growth looks reasonable.

#### CONCLUSION

It would appear clear from the size of the market, both primary and secondary, that it would be desirable to establish a facility in Canada to manufacture diesel engines, based mainly on the import replacement market. Since the bulk of the market for imports and exports is United States oriented, it would seem clear that a U.S. manufacturer

would be preferred. However, it is unlikely that a U.S. manufacturer will establish a facility in Canada so long as he can import engines duty free under the Auto Pact.

The second major importer of diesel engines into Canada is Britain, and under the British Preferential Tariff, these products enter duty free.

We have based our conclusion that justification for the manufacture of diesel engines in Canada exists, on the size of the total market for diesels. Any manufacturer acting on this assessment would need to undertake more detailed research to define the market for his particular engine power range, and in all probability will need to be highly flexible in order to make the various configurations necessary within the defined power range. It is highly likely that segmentation of the market by power range and end use will show that import substitution on the primary market alone would not be sufficient justification for a plant, given existing tariff structures, without the possibility of some exports. This tends to reinforce our original statement that justification for a facility exists based on the primary and secondary markets.

IV - COSTSMANUFACTURING COSTS

According to manufacturers contacted both in Canada and the United States, it is impossible to generalize on the cost of producing a diesel engine, because these costs will vary widely depending on power range, speed range, end use, and configuration. On the basis that such data would be too general and hence open to dispute, or that it would be meaningless, the data was not provided at the time of writing.

However, the 1967 U.S. Census of Manufacturers gives a useful breakout of costs associated with the non-automotive diesel manufacturing industry (class 35193), which accounts for approximately 66 per cent of all diesel engines produced in the USA as primary products. The cost breakouts were as follows:

Direct Labour	-	14.7%
Indirect Labour	-	8.3%
Materials	-	55.0%
Gross Margin	-	<u>22.0%</u>
Ex-Works FOB Price		<u>100.0%</u>

The gross margin is determined by deducting direct and indirect wages and salaries from value added by manufacture (45 per cent), and should include such items as depreciation on plant and equipment, general and administrative expenses, and sales expense.

TARIFFS

Tariffs are considered to be of overriding importance by manufacturers in determining whether or not to produce diesel engines in a given country, and this is particularly so in the case of Canada. A senior executive of the controlling company of a major diesel producer has stated that transportation costs are negligible in comparison to tariffs when deciding to instal a new facility.

On this basis, it appears clear that manufacturers within the USA have no incentive to locate in Canada because their equipment can be installed in vehicles within the United States or dispatched direct to Canadian manufacturers of original automotive equipment, and enter Canada duty free within the terms of the Canada - U.S. Auto Pact.

British manufacturers in a similar manner need no facilities in Canada because of duty free entry under the British Preferential Tariff. The only other manufacturers, notably German, are not well established in Canada, and would need a major effort in terms of finance to enter the North American market and so justify a new facility.

Import Tariff Structure

- a) From the USA - complete automotive vehicles, manufactured by specified U.S. producers, and with at least 50 per cent North American manufactured content, enter duty free. Automotive products not covered by the Auto Pact, (marine, and industrial engines,) are classified for duty purposes by end use, and attract duty at the rate of 15 per cent A.V.

- b) From Britain - all diesel engines are imported under the British Preferential Tariff duty free. However, at this stage it is uncertain that duty free status will remain when Britain begins implementing the European Economic Community tariffs against Canadian goods.
- c) Most Favoured Nation - includes most European Economic Community members, and the USA (apart from those goods covered by the Canada - U.S. Auto Pact). Goods are classified by end use and attract 15 per cent A.V. duty.
- d) General or Open Category - (all other countries) - 30 per cent A.V. rate of duty.

Tariffs Against  
Canadian Exports

As the primary export market for any proposed production of Canadian diesel engines would almost certainly be the United States, only the U.S. import tariffs are quoted.

U.S. Tariffs

- a) A Canadian producer of diesel engines, if utilizing more than 50 per cent North American content in his production of engines, would attract duty under one of the following three classifications:
  - Item 660-40 - Engines destined for inclusion in new items of agricultural equipment, by a listed manufacturer of agricultural implements - Duty Free.
  - Item 660-42 - Engines destined for general use not covered by Item 660-40 or Item 660-43 - 5 per cent A.V.
  - Item 660-43 - (Auto Pact) Engines destined for listed original equipment manufacturers, for inclusion in new motor vehicles - Duty Free.

V - LOCATION

In any consideration of location of a facility to produce diesel engines, two possibilities as to type exist. These are:

- complete manufacturing
- assembly of engines only.

Although it is desirable that Canada have a facility to produce diesel engines, of either type, when the feasibility is examined primarily within the context of the Regional Development Incentives Act with the express aim of developing industry in areas of economic disparity, then the feasibility of a complete manufacturing facility appears dubious.

The two possibilities will now be examined in greater detail, and the reasoning developed.

A COMPLETE  
MANUFACTURING FACILITY

In selecting a site for a complete manufacturing facility, the primary consideration appears to be proximity of resources, and in particular raw materials and labour. The complete manufacture of diesel engines calls for either a high level of automation and capital investment, and hence, relatively long runs of specific engines, or alternatively, relatively less automation with high levels of flexibility, which in turn requires highly skilled labour. In the Canadian context, it is doubtful that the highly automated option will give anywhere near the



needed flexibility, because of the number of different configurations needed. This being so, the facility would need a highly skilled work force, and it is doubtful that such a work force could be assembled outside Southern Ontario or the Montreal area. In addition, nowhere outside Southern Ontario would there be adequate suppliers of essential components within reasonable distance.

When to these major considerations are added the minor considerations of proximity to Canadian consumers, proximity to major American consumers, and minimal transportation distances, then the case for a Southern Ontario plant becomes overwhelming insofar as full production is the object.

The argument is again reinforced if a U.S. manufacturer is the interested party. In this case, a Southern Ontario location will give not only the advantages offered above, but, as most major American producers of diesel engines are located around the Great Lakes, it will also give close proximity to the parent company, facilitating and reducing the cost of controlling the affiliate/subsidiary. Reduction of cost would be achieved by the reduced levels of technical staffing required by a Canadian plant close to the parent as compared to a more remote location.

Thus, on the basis of either a U.S. manufacturer or a European manufacturer (and the level of investment required, plus the technical expertise required dictates that an existing manufacturer be involved) the case for locating a manufacturing facility on the Montreal-Windsor

axis is conclusive, and none of the aims of the Regional Development Incentives Act would be met. However, in the absence of a positive disincentive not to locate in Canada, the argument may be academic.

#### ASSEMBLY OF ENGINES

In the case of an assembly operation only, the locational options are considerably extended. In particular, if we consider the case of European manufacturers, then the engines are already being transported over long distances. If we consider a CKD assembly operation, then a facility could be located anywhere within Canada from the East Coast to Windsor, without extending in any way the transport distances involved. Labour need not be nearly so skilled, and raw material supply ceases to be a major consideration. In fact, although a facility could locate and assemble purely from complete kits, the facility would tend to source locally if economics permit, and be a positive incentive to satellite industry. The Canada-U.S. Auto Pact calling for 50 per cent North American content before the production can be included within the terms of the pact would be a very powerful incentive to raise Canadian content as rapidly as possible.

In conclusion, an assembly facility has increased locational possibilities, reduced need for labour in terms of numbers and skills, is not so dependent upon proximity to suppliers, suffers no transportation cost increment (if a British or European company is involved), and it would be a powerful generator of new industry in its own right.

LINKAGE PATTERNS

As previously mentioned, a diesel assembly facility would appear to be able to locate close to a foundry or to a customer with advantages to both.

Regional Locational  
Possibilities

On the assumption that the new facility would wish to apply for a DREE grant, then the Montreal/Windsor axis may be excluded, and possible locations are reduced to the area east of Sherbrooke, or West of Sault Ste. Marie.

In particular, Winnipeg, Halifax and Saint John, New Brunswick will be considered.

Winnipeg has the advantage that it possesses a possible supplier in the form of a foundry, and two possible consumers in the form of Canadian Co-Operative Implements Limited, and Versatile Tractor. However, these two consumers are relatively small, and Winnipeg as a location suffers from dual disadvantages of extended transportation routes for raw materials inward, and possible exports outward.

Halifax has the advantage that it also possesses a foundry, although it is doubtful that it could supply volume castings at competitive prices. Although there appears to be no consumer very close, it offers the further advantage that transportation distances and routings need not be changed drastically, and transportation linkages are not extended.

Saint John, New Brunswick - In conjunction with Multiplex, a foundry facility is expected to exist which would be technically capable of supplying a diesel assembly facility. Like Halifax, transportation linkages would be neither changed drastically or extended, and a consumer of diesels is fairly close, namely the Irving group school bus manufacturing facility, and the Irving heavy and medium commercial truck manufacturing facility.

On this basis, it would appear that either Halifax or Saint John are to be preferred over Winnipeg and Saint John is preferred over Halifax. The project should be undertaken in conjunction with a European (including British) manufacturer currently supplying the market, or a powerful manufacturer from the same area attempting to enter the market. Once such a facility is established, the management would be advised to petition the Commissioners of Customs and Excise to have diesel engines classified as "a make or product made in Canada", and to adjust the tariff structure accordingly.

VI - STRENGTHS AND CONSTRAINTS

The major strength of a diesel engine facility in the configuration and location proposed would be the apparent perfect fit with the Multiplex concept, and the self-augmentation in terms of feasibility of the two projects taken in conjunction. Transportation as a factor determining feasibility and location is relatively less important than the tariff structure.

However, the great importance of the United States as a trading partner in diesel engines and diesel-engined equipment must be considered a major constraint. North American diesel manufacturers would be the preferred partners, because their products are well known and accepted throughout North America, and management problems would be more easily dealt with by a parent facility relatively close to a new facility. In addition, strong sales and service networks exist throughout America and Canada.

The Canada-U.S. automotive pact must be considered a positive disincentive to a new Canadian facility, because existing U.S. suppliers can provide engines within the USA or direct to Canada for inclusion within automotive equipment, which can be imported into Canada duty free. So long as the balance of advantage in the automotive pact lies with Canadian producers, it is highly unlikely that the pact will be jeopardized by the Canadian Government, in attempting to create favourable tariff incentives to a diesel manufacturer.

The position of European manufacturers is much less advantageous than U.S. manufacturers. They cannot avail themselves of the advantages of the auto pact, which must put them at a competitive disadvantage. Particularly for non-established European manufacturers, it appears that unless they establish a North American facility and rapidly raise the content of Canadian and U.S. components, they have little possibility of penetrating the North American market to a meaningful degree, and, since the bulk of diesel engined equipment is manufactured in the USA (the secondary market) they must penetrate the U.S. market to justify the facility.

Established European manufacturers in North America, (primarily British) will have no incentive to establish a plant in Canada so long as the British Preferential Tariff exists. The accession of Britain into the European Common Market will presumably be followed by renegotiation of tariffs with Britain, since they are committed to raising tariffs against Canadian goods. The opportunity should be taken to remove the duty free status of British built diesel engines, and thus give these manufacturers a positive incentive to set up a new diesel assembly facility in Canada.



APPENDIX A

IMPORTS OF DIESEL ENGINES,  
1967 TO FIRST HALF 1972 INCLUSIVE

## APPENDIX A

## IMPORTS OF DIESEL ENGINES, 1961 to 1966 INCLUSIVE

OLD CLASS	NEW CLASS	PRODUCT	1961		1962		1963		1964		1965		1966			
			Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000		
5266	588-04	MOTOR VEHICLE ENGINES, DIESEL														
		- UK ONLY	511	1,318	826	2,327	866	2,399	1,286	2,792	926	1,202	778	544		
		- US ONLY	613	1,583	934	2,712	1,480	4,445	2,222	6,765	3,368	10,331	4,342	13,334		
		TOTAL ALL COUNTRIES	1,122	2,915	1,765	5,052	2,350	6,855	3,524	9,595	4,338	11,603	5,142	13,889		
5268	502-18	DIESELS AND SEMI-DIESEL ENGINES, NES ALL SIZES														
		- UK	2,049	4,418	2,069	3,261	1,757	2,077	2,621	2,965	4,353	4,655	3,721	4,734		
		- WEST GERMANY	144	181	193	182	423	103	172	148	408	330	265	189		
		- US	1,922	4,203	1,580	5,221	2,021	5,256	3,193	7,395	5,574	12,120	5,493	11,811		
		TOTAL ALL COUNTRIES	4,163	8,855	3,859	8,671	4,224	7,468	6,015	10,636	10,392	17,155	9,502	16,825		
5265	592-27	MARINE DIESELS, ALL SIZES														
		- UK	440	1,655	532	1,034	633	1,958	612	1,445	437	1,450	731	1,960		
		- WEST GERMANY	22	43	57	162	72	666	182	470	162	542	128	785		
		- SWEDEN	33	42	46	45	163	524	104	307	275	633	183	1,568		
		- US	514	2,129	673	3,120	659	3,739	630	3,753	750	4,019	912	4,868		
				TOTAL ALL COUNTRIES	1,061	4,506	1,365	5,465	1,606	8,230	1,600	8,301	1,730	9,481	2,065	10,682
				TOTAL DIESELS OF ALL TYPES AND SIZES IMPORTED												
		- UK ONLY	3,000	7,391	3,427	6,622	3,256	6,434	4,519	7,202	5,716	7,307	5,230	7,238		
		- US ONLY	3,049	7,915	3,187	11,053	4,160	13,440	6,045	17,913	9,692	26,470	10,747	30,013		
		TOTAL ALL COUNTRIES	6,356	16,276	6,989	19,188	8,180	22,553	11,139	28,532	16,460	38,239	16,709	41,396		

APPENDIX B

IMPORTS OF DIESEL ENGINES,  
1967 to FIRST HALF 1972 INCLUSIVE

APPENDIX B

IMPORTS OF DIESEL ENGINES, 1967 TO FIRST HALF 1972 INCLUSIVE

CLASS	PRODUCT	1967		1968		1969		1970		1971		FIRST HALF 1972	
		Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000
588-04	MOTOR VEHICLE ENGINES, DIESEL												
	- U.K.	758	620	767	515	805	1,284	363	786	609	1,434	869	3,439
	- U.S.	3,612	12,154	4,653	16,707	6,697	24,662	5,281	20,515	7,438	30,077	4,043	15,712
	- Total (All countries)	4,401	12,862	5,433	17,239	7,574	26,094	5,741	21,415	8,051	31,522	4,919	19,169
502-18	DIESELS AND SEMI-DIESELS, NES ALL SIZES												
	- U.K.	4,577	5,504	4,714	5,038	3,610	4,168	3,725	5,011	3,557	4,605	3,733	4,998
	- West Germany	319	489	211	475	573	592	732	1,075	675	1,081	488	465
	- U.S.	4,462	10,688	6,611	13,117	4,043	10,019	4,165	9,806	5,464	16,642	3,443	9,212
	- Total (All countries)	9,422	16,737	11,630	18,718	8,334	14,909	8,782	16,068	9,866	22,468	7,743	14,755
592-27	MARINE DIESELS, ALL SIZES												
	- U.K.	511	3,401	263	1,963	340	1,323	275	566	301	1,231	231	1,353
	- West Germany	138	1,647	54	906	30	94	25	88	30	51	24	452
	- Sweden	142	686	173	743	170	243	203	183	211	348	190	458
	- U.S.	933	5,982	759	3,862	1,033	4,724	1,045	5,527	888	4,455	678	3,942
	- Total (All countries)	1,882	14,304	1,386	9,378	1,738	7,301	1,785	6,800	1,633	6,306	1,254	9,875
	TOTAL DIESELS OF ALL TYPES AND SIZES IMPORTED												
	- U.K. only	5,846	9,525	5,744	7,516	4,755	6,775	4,363	6,363	4,467	7,270	4,833	9,790
	- U.S. only	9,007	28,824	12,023	33,686	11,773	39,405	10,491	35,848	13,790	51,174	8,164	28,866
	- Total (All countries)	15,705	43,903	18,449	45,335	17,646	48,304	16,308	44,283	19,550	60,296	13,916	43,799

APPENDIX C

EQUIPMENT WHICH COULD OR DOES UTILIZE  
DIESEL ENGINES MANUFACTURED IN CANADA  
(1969 TO FIRST HALF 1972)

## APPENDIX C

EQUIPMENT WHICH COULD OR DOES UTILIZE DIESEL ENGINES  
MANUFACTURED IN CANADA (1969 TO FIRST HALF 1972)

PRODUCT	1967		1968		1969		1970		1971		FIRST HALF 1972	
	Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000
AIR COMPRESSORS (STATIONARY) UP TO 25CF	-	4,795	-	3,112	4,352	2,777	4,349	2,169				
AIR COMPRESSORS (STATIONARY) OVER 25CF	-	8,264	-	9,365	-	13,039	846	11,641				
AIR COMPRESSORS (PORTABLE)	-	4,284	-	3,771	-	4,642	5,813	4,055				
CRANES OTHER THAN OVERHEAD GANTRY	-	7,294	-	7,442	-	9,847	-	4,951				
OTHER TYPES OF HOISTING MACHINERY	-	3,291	-	7,169	-	16,432	-	20,816				
LIFT TRUCKS	-	19,680	2,754	17,345	4,225	26,854	3,864	29,125				
OTHER INDUSTRIAL TRACTORS AND STACKERS	-	708	-	599	-	2,994	-	2,952				
POWER SHOVELS	129	7,081	146	8,369	165	9,913	175	6,617				
FRONT-END LOADERS	3,915	3,346	2,318	2,826	3,477	2,584	4,846	2,622				
SELF-PROPELLED LOADERS	-	20,145	1,221	28,206	1,281	38,466	936	32,228				
OTHER EXCAVATING EQUIPMENT AND PARTS	-	5,857	-	9,902	-	7,692	-	8,368				
(INCLUDES BULL DOZING, ANGLE DOZING, AND SIMILAR OTHER EXCAVATING EQUIPMENT AND PARTS)	-	791	-	-	-	-	-	-				
SELF PROPELLED GRADERS	812	14,565	624	12,110	794	15,920	714	14,911				
OTHER ROAD AND AIRPORT CONSTRUCTION EQUIPMENT	-	1,822	-	2,088	-	3,028	-	4,066				
MISCELLANEOUS MATERIALS HANDLING EQUIPMENT	-	25,521	-	18,837	-	23,469	-	23,188				
COMBINE HARVESTERS	16,842	83,183	10,374	61,550	10,538	63,484	5,282	32,557				
TRUCKS MORE THAN 6,000 LBS. GVWU	88,079	283,234	100,979	322,841	123,972	413,964	51,539	248,774				
BUSSES AND CHASSIS PRODUCTION QUANTITIES AND SHIPMENTS VALUE	4,827	38,000	4,265	23,819	4,634	30,027	5,110	30,737				
LOGGING MACHINERY (LOG SKIDDERS ABOUT 50%)	-	49,403	-	61,643	-	87,467	-	70,366				
ALL OTHER CONSTRUCTION MACHINERY (OFF HIGHWAY TRUCKS, ROAD ROLLERS)	-	7,574	-	10,399	-	7,015	-	10,728				
TRACTORS, WHEELED AND TRACKED (KPM APPROXIMATIONS)	-	-	-	-	2,400 units	-	1,800 units	-				
TOTAL CANADA MANUFACTURES	214,607	588,834	122,681	612,015	155,838	779,614	85,274	560,871				



APPENDIX D

IMPORTS OF EQUIPMENT UTILIZING  
DIESEL ENGINES ALMOST ENTIRELY

APPENDIX E

IMPORTS OF EQUIPMENT UTILIZING ENGINES  
ALMOST ENTIRELY - 1967 TO FIRST  
HALF OF 1972 INCLUSIVE (DBS)

APPENDIX E

IMPORTS OF EQUIPMENT UTILIZING ENGINES ALMOST ENTIRELY  
1967 TO FIRST HALF OF 1972 INCLUSIVE (DBS)

CLASS	PRODUCT	1967		1968		1969		1970		1971		FIRST HALF OF 1972	
		UNITS	VALUE \$000	UNITS	VALUE \$000	UNITS	VALUE \$000	UNITS	VALUE \$000	UNITS	VALUE \$000	UNITS	VALUE \$000
FROM U.S.A.													
510-49	INDUSTRIAL TRUCKS AND TRACTORS	749	4,240	339	3,209	632	5,137	472	4,704	509	4,182	366	2,701
519-31	WOODLAND LOG SKIDDERS	-	-	-	-	-	-	435	5,346	420	5,938	346	6,476
521-28	POWERED SHOVELS	314	17,263	277	14,836	290	24,166	248	21,605	478	30,547	365	19,430
521-32	SCRAPERS (DIG, CARRY, HAUL)	265	13,782	189	12,885	121	7,589	126	9,397	192	13,347	129	8,760
521-33	BULLDOZERS AND ALLIED EQUIPMENT	1,049	30,852	831	24,395	1,063	33,403	45	9,074	52	11,283	42	6,739
521-35	FRONT END LOADERS	1,705	41,646	1,783	45,803	2,255	64,195	1,031	48,285	2,215	62,164	1,138	43,042
522-32	SELF PROPELLED GRADERS	290	10,082	246	10,187	230	12,212	215	10,509	291	12,288	1,626	9,012
551-28	TRACK-LAYING TRACTORS - DIESEL ONLY	841	16,619	696	18,395	658	19,895	1,289	35,683	1,877	48,667	1,207	34,717
587-29	BUSSES AND CHASSIS	251	7,340	794	6,329	804	5,617	871	7,171	1,110	9,291	565	6,881
587-69	OFF HIGHWAY TRUCKS	-	-	126	11,463	130	15,075	112	11,963	234	24,230	48	5,237
TOTAL FOR U.S.A.		5,464	141,824	5,281	147,502	6,183	187,289	4,844	163,737	7,378	221,937	5,832	142,995
U.S. PERCENTAGE OF TOTAL FOR ALL COUNTRIES		95.8	97.4	91.1	95.5	91.7	94.0	91.5	95.0	91.5	93.0	83.0	91.6

APPENDIX D

IMPORTS OF EQUIPMENT UTILIZING DIESEL ENGINES ALMOST ENTIRELY  
(Total imports from all countries of the specified equipment)

CLASS	PRODUCT	1967		1968		1969		1970		1971		FIRST HALF 1972	
		Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000
510-49	INDUSTRIAL TRUCKS AND TRACTORS	847	4,602	516	3,525	731	5,383	602	5,712	735	5,875	1,199	3,603
519-31	WOODLAND LOG HANDLING EQUIP.	-	-	-	-	-	-	437	5,406	430	6,190	349	6,674
521-28	POWERED SHOVELS	338	17,680	347	16,475	373	28,799	345	24,944	645	38,435	550	26,343
521-32	SCRAPERS - DIG, CARRY, HAUL	269	13,864	189	12,885	121	7,633	126	9,419	197	13,647	130	8,807
521-33	BULLDOZERS AND EQUIPMENT	1,080	31,584	925	26,457	1,250	37,415	46	9,492	54	11,976	48	7,287
521-36	FRONT END LOADERS	1,765	42,669	1,906	47,595	2,441	67,290	1,105	49,535	2,291	63,686	1,189	44,424
522-32	GRADERS	290	10,272	246	10,491	230	12,446	215	10,646	292	12,525	1,627	9,132
551-28	TRACK-LAYING TRACTORS, DIESEL	841	16,619	710	18,574	660	19,948	1,390	37,576	2,037	52,266	1,326	37,455
587-29	BUSES AND CHASSIS NEW	283	7,983	798	6,417	807	5,726	902	7,390	1,145	9,760	582	7,021
587-69	OFF HIGHWAY TRUCKS	-	-	159	12,152	131	15,081	112	11,963	234	24,230	48	5,237
	TOTAL (FOR ALL COUNTRIES)	5,713	145,273	5,796	154,571	6,744	199,721	5,280	172,083	8,060	238,590	7,048	155,983
	GRAND TOTAL - ALL PRE-ENGINEED EQUIPMENT IMPORTS CAPABLE OF UTILIZING DIESEL ENGINES	76,879	445,005	81,417	429,244	89,467	521,983	77,336	466,770	95,175	640,145	60,775	429,791

APPENDIX F

IMPORTS OF EQUIPMENT PARTLY  
UTILIZING DIESEL ENGINES

APPENDIX F

IMPORTS OF EQUIPMENT PARTLY UTILIZING DIESEL ENGINES  
(Total imports from all countries of the specified equipment)

CLASS	PRODUCT	1967		1968		1969		1970		1971		FIRST HALF 1972	
		Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000
503-15	SELF-CONTAINED GENERATOR SETS	4,464	4,658	3,827	4,918	4,512	3,683	4,572	4,056	4,944	5,606	4,088	3,375
507-33	AIR AND GAS COMPRESSORS	9,487	16,353	19,664	15,249	<u>Stationary</u>		979	15,500	1,352	15,289	455	8,155
						NES							
						17,531	8,878	15,843	7,407	12,853	7,301	6,695	4,934
510-35	CRANES AND DERRICKS	1,121	13,992	970	12,548	1,400	15,974	1,018	22,425	1,278	27,802	830	15,635
510-45	LIFT TRUCKS INDUSTRIAL POWERED	897	6,101	821	6,296	951	7,482	894	7,067	1,072	9,347	972	7,807
521-22	TRENCH DIGGING M/C'S	178	2,039	211	2,652	280	4,057	186	2,368	179	2,452	117	1,655
521-35	COMBINATION BACKHOE AND FRONT-END LOADER	836	6,910	813	6,774	1,202	11,849	293	5,294	240	3,585	167	2,863
522-36	ROAD ROLLERS	194	968	168	1,059	214	1,451	106	1,048	93	824	100	826
543-72	COMBINE REAPER THRESHER	5,365	35,569	3,383	22,448	3,233	23,370	1,276	8,639	1,779	13,203	1,677	11,145
551-19	WHEELED TRACTORS	33,973	128,955	23,711	93,837	16,943	67,845	14,595	55,941	22,730	107,378	12,561	64,615
551-85	TRACTOR ENGINES & PARTS	4,350	7,049	4,212	8,428	9,682	12,103	4,323	7,139	4,182	6,377	1,697	4,150
583-29	NEW TRUCK AND CHASSIS COMMERCIAL	10,301	77,138	17,841	100,464	25,907	154,693	27,971	157,803	36,413	211,391	24,368	148,648
TOTAL		71,166	299,732	75,621	274,673	82,723	322,262	72,056	294,687	87,115	410,555	53,727	273,808

APPENDIX G

IMPORTS OF EQUIPMENT PARTLY UTILIZING  
DIESEL ENGINES BY COUNTRY  
1967 TO FIRST HALF OF 1972 (DBS)

APPENDIX G

IMPORTS OF EQUIPMENT PARTLY UTILIZING DIESEL ENGINES  
BY COUNTRY 1967 TO FIRST HALF OF 1972 (DBS)

UNITED STATES

CLASS	PRODUCT	1967		1968		1969		1970		1971		First Half of 1972	
		Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000
503-15	SELF-CONTAINED GENERATOR SETS	2,936	3,213	3,065	4,146	3,499	3,107	3,390	3,492	3,393	4,713	3,156	3,216
507-11	AIR AND GAS COMPRESSORS, STATIONARY	( 6,533	12,367	10,354	10,594)	495	9,715	288	12,050	662	12,410	174	5,838
507-29	AIR AND GAS COMPRESSORS NES	(				14,388	5,240	8,468	4,409	9,388	4,177	5,690	2,953
510-35	CRANES AND DERRICKS	751	11,608	569	10,399	676	12,834	589	18,520	908	22,179	400	13,720
510-45	LIFT TRUCKS INDUSTRIAL POWERED	631	4,489	543	4,505	692	5,728	644	5,448	694	7,103	646	6,024
521-22	TRENCHERS	172	1,861	210	2,590	240	3,528	183	2,289	174	2,383	110	1,517
521-35	COMBINATION BACKHOE AND FRONT- END LOADER	835	6,901	811	6,759	1,201	11,844	280	5,151	235	3,531	167	2,863
522-36	ROAD ROLLERS	174	828	157	965	192	1,369	97	948	87	764	94	761
543-72	COMBINE REAPER THRESHER	5,046	34,078	2,711	17,435	2,993	21,449	1,131	7,693	1,668	12,264	1,021	8,409
551-19	WHEELED TRACTORS	22,789	102,424	15,457	73,334	10,677	52,329	7,556	36,870	12,244	76,458	7,297	47,774
551-85	TRACTOR ENGINES AND PARTS	3,731	6,007	3,018	6,224	5,844	7,465	2,898	5,389	3,593	5,512	1,371	3,655
583-29	NEW TRUCKS AND CHASSIS COMMERCIAL	10,292	77,083	17,841	100,464	25,893	154,609	27,957	157,717	36,347	211,215	24,334	148,460
	TOTAL U.S.	53,890	260,849	54,736	237,415	66,790	289,217	53,481	259,976	69,393	362,709	44,460	245,190
	U.S. AS PERCENTAGE OF TOTAL IN CATEGORY	75.6	87.0	72.4	86.5	80.8	89.6	74.0	88.4	79.5	88.3	82.6	89.5



APPENDIX H

IMPORTS OF EQUIPMENT PARTLY UTILIZING  
DIESEL ENGINES BY COUNTRY  
1967 TO FIRST HALF OF 1972 (DBS)

APPENDIX H

IMPORTS OF EQUIPMENT PARTLY UTILIZING DIESEL ENGINES  
BY COUNTRY 1967 TO FIRST HALF OF 1972 (DBS)

UNITED KINGDOM

CLASS	PRODUCT	1967		1968		1969		1970		1971		First Half of 1972	
		Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000
503-15	SELF CONTAINED GENERATOR SETS	313	1,105	248	665	369	505	281	377	356	354	53	58
507-11	AIR AND GAS COMPRESSORS, STATIONARY	1,491	3,046	1,671	3,280	276	605	435	1,345	443	1,254	137	1,016
507-29	AIR AND GAS COMPRESSORS NES	(		)		1,581	2,833	1,366	2,204	1,529	2,205	600	1,249
510-35	CRANES AND DERRICKS	21	601	16	726	14	565	15	1,914	43	3,471	8	604
510-45	LIFT TRUCKS, INDUSTRIAL POWERED	75	466	82	601	119	877	106	869	76	1,013	63	510
521-22	TRENCHERS	-	19	1	57	33	331	7	10	5	37	1	8
521-35	COMBINATION BACKHOE AND FRONT-END LOADER	-	-	1	8	1	5	10	94	5	54	-	-
522-36	ROAD ROLLERS	20	140	11	91	22	81	9	100	6	59	6	65
543-72	COMBINE REAPER THRESHER	-	-	-	-	3	12	4	37	-	-	-	-
551-19	WHEELED TRACTORS	7,444	16,573	5,641	12,105	4,579	10,363	4,234	10,129	5,421	14,864	3,010	8,685
551-85	TRACTOR ENGINES AND PARTS	593	930	1,170	2,150	2,397	3,601	547	1,194	112	399	137	314
583-29	NEW TRUCKS AND CHASSIS COMMERCIAL	103	118	1	7	2	30	-	-	-	-	-	-
TOTAL UK		10,060	22,998	8,842	19,690	9,396	19,808	7,014	18,273	7,996	23,710	4,015	12,509
UK AS A PERCENTAGE OF TOTAL IN CATEGORY		14.1	7.7	11.7	7.2	11.4	6.1	9.7	6.2	9.2	5.7	7.5	4.6

APPENDIX J

EXPORTS OF EQUIPMENT UTILIZING  
DIESEL ENGINES ALMOST ENTIRELY  
ALL COUNTRIES 1967 TO FIRST HALF 1972

APPENDIX J

EXPORTS OF EQUIPMENT UTILIZING DIESEL ENGINES ALMOST ENTIRELY

ALL COUNTRIES 1967 TO FIRST HALF 1972

CLASS	PRODUCT	1967		1968		1969		1970		1971		FIRST HALF 1972	
		Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000
514-39	INDUSTRIAL TRUCKS, TRACTORS AND PARTS, NES	2,642	2,414	1,680	2,717	1,850	4,008	1,453	6,346	1,431	6,581	259	483
519-31*	WOODLAND LOG HANDLING EQUIPMENT	-	-	-	-	-	-	1,981	29,545	1,503	26,346	947	16,677
521-29	POWER CRANES AND SHOVELS	-	-	-	-	-	-	-	-	27	3,489	18	1,070
521-33	BULLDOZERS AND EQUIPMENT	-	-	-	-	-	-	-	-	321	2,171	47	870
587-99	MOTOR VEHICLES, NES (INCLUDES BUSES, CHASSIS, AND OFF HIGHWAY TRUCKS)	89,671	49,864	125,281	86,947	196,716	145,456	5,537	21,149	5,332	19,486	3,005	12,230
	TOTAL ALL COUNTRIES	92,313	52,278	126,961	89,664	198,566	149,464	8,871	57,040	8,614	58,073	4,276	31,330

EXPORTS OF EQUIPMENT PARTIALLY UTILIZING DIESEL ENGINES

ALL COUNTRIES 1967 TO FIRST HALF 1972

CLASS	PRODUCT	1967		1968		1969		1970		1971		FIRST HALF 1972	
		Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000
	SELF CONTAINED GENERATOR SETS	NOT BROKEN OUT FROM 503-17 - GENERATORS INCLUDING SELF CONTAINED											
507-39	AIR AND GAS COMPRESSORS AND PARTS	-	5,518	-	9,468	-	12,636	-	9,425	-	9,883	-	2,356
513-15	CRANES AND DERRICKS	-	-	-	-	-	-	149	4,594	189	7,863	73	2,700
514-15	LIFT TRUCKS, INDUSTRIAL POWERED, NES	-	-	-	-	-	-	-	-	-	-	132	205
519-99	MATERIALS HANDLING EQUIPMENT AND PARTS, NES (INCLUDES FRONT-END LOADERS, ETC.)	-	3,107	-	6,204	-	8,326	-	8,725	-	9,286	-	3,185
521-39	EXCAVATING AND DREDGING MACHINERY AND PARTS, NES (INCLUDES SCRAPERS, TRENCHERS, COMBINATION BACKHDE	-	7,105	-	9,218	-	13,640	-	13,317	-	18,371	-	4,211
529-29	CONSTRUCTION AND MAINTENANCE EQUIPMENT, NES												
	INCLUDES GRADERS AND ROAD ROLLERS	-	14,198	-	17,925	-	23,803	-	18,983	-	18,276	-	9,726
543-72	COMBINE REAPER - THRESHER	11,629	75,288	8,529	64,629	7,691	63,688	4,786	43,037	5,535	53,405	3,218	32,302
551-19	WHEEL TRACTORS, NEW AND USED	552	2,068	1,227	8,177	1,780	13,515	1,337	8,161	1,606	7,807	889	5,117
	TRACTOR ENGINES AND PARTS	NOT BROKEN OUT OF 551-21 PARTS OF WHEEL TRACTORS											
551-99	TRACTORS NES AND PARTS	204	3,792	242	3,476	214	3,149	1,154	9,022	-	8,055	-	5,926
583-39	TRUCKS AND CHASSIS - COMMERCIAL NES	52,977	153,375	69,183	219,285	95,787	301,139	93,102	332,057	95,569	356,417	63,354	213,235
	TOTAL ALL COUNTRIES	65,362	264,451	79,181	338,382	105,472	439,896	100,528	447,321	102,899	489,363	67,666	279,005
	GRAND TOTAL EXPORTS TO ALL COUNTRIES	157,675	316,729	206,142	428,046	304,038	589,360	109,399	504,361	111,513	547,436	71,942	310,335

APPENDIX K

EXPORTS OF EQUIPMENT UTILIZING  
DIESEL ENGINES ALMOST ENTIRELY  
U.S. - 1967 TO FIRST HALF OF 1972

APPENDIX K

EXPORTS OF EQUIPMENT UTILIZING DIESEL ENGINES ALMOST ENTIRELY

U.S. - 1967 TO FIRST HALF OF 1972

CLASS	PRODUCT	1967		1968		1969		1970		1971		FIRST HALF 1972	
		Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000
514-39	INDUSTRIAL TRUCKS AND TRACTORS AND PARTS NES	2,603	2,202	1,628	2,573	1,784	3,779	1,413	6,034	1,344	6,021	253	401
519-31	WOODLAND LOG HANDLING EQUIPMENT	-	-	-	-	-	-	1,325	19,362	1,062	17,097	765	12,984
521-29	POWER CRANES AND SHOVELS	-	-	-	-	-	-	-	-	26	2,895	16	625
521-33	BULLDOZERS AND EQUIPMENT	-	-	-	-	-	-	-	-	302	1,958	44	774
587-99	MOTOR VEHICLES NES (INCLUDES BUSES, CHASSIS AND OFF HWY. TRUCKS) ALSO SNOWMOBILES UNTIL 1970	89,446	148,922	123,774	84,183	193,734	140,947	5,235	18,847	5,086	14,442	2,876	6,612
	TOTAL U.S.	92,049	151,124	125,402	86,756	195,518	144,726	7,973	44,243	7,820	42,413	3,934	21,396
	U.S. AS PERCENTAGE OF ALL COUNTRIES	99.5	98.0	99.0	96.7	98.5	96.8	90.0	77.5	90.6	73.0	92.5	68.5

EXPORTS OF EQUIPMENT PARTIALLY UTILIZING DIESEL ENGINES

U.S. - 1967 TO FIRST HALF OF 1972

CLASS	PRODUCT	1967		1968		1969		1970		1971		FIRST HALF 1972	
		Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000	Units	Value \$000
507-39	AIR AND GAS COMPRESSORS AND PARTS	-	4,591	-	7,725	-	10,712	-	7,088	-	6,085	-	1,715
513-25	CRANES AND DERRICKS	-	-	-	-	-	-	85	1,176	80	2,695	44	1,308
514-15	LIFT TRUCKS, INDUSTRIAL POWERED, NES	-	-	-	-	-	-	-	-	-	-	181	591
519-99	MATERIALS HANDLING EQUIPMENT, AND PARTS, NES (FRONT-END LOADERS, ETC.)	-	2,798	-	5,828	-	7,219	-	7,877	-	7,186	-	2,194
521-39	ENCAVATING AND DREDGING MACHINERY AND PARTS, NES (SCRAPERS, TRENCHERS, COMBINATION BACKHOE)	-	5,400	-	9,218	-	11,935	-	9,156	-	16,401	-	3,519
529-29	CONSTRUCTION AND MAINTENANCE MACHINERY AND PARTS, NES (GRADERS, ROAD ROLLERS, ETC.)	-	8,903	-	9,213	-	13,568	-	11,127	-	9,057	-	5,244
543-72	COMBINE REAPER THRESHER	11,125	71,965	7,973	60,901	7,197	60,260	4,628	41,685	5,274	51,181	3,137	31,347
551-19	WHEELED TRACTORS, NEW AND USED	545	2,022	1,196	8,074	1,771	13,448	1,315	8,077	1,570	7,730	860	5,041
551-99	TRACTORS NES AND PARTS (INCLUDING TRACK-LAYING TRACTORS)	126	3,044	155	2,745	172	2,764	1,128	8,634	-	7,389	-	5,392
583-39	TRUCKS AND CHASSIS - COMMERCIAL NES	43,168	126,601	57,214	187,340	85,740	274,738	76,500	282,901	81,592	316,456	57,306	194,944
	TOTAL U.S.	54,964	225,324	66,538	291,044	94,880	394,644	83,656	377,721	88,516	424,180	61,528	251,295
	U.S. AS PERCENTAGE OF ALL COUNTRIES	84.0	85.0	84.1	86.0	90.0	90.0	84.3	84.5	86.0	86.7	91.0	90.0
	GRAND TOTAL EXPORTS TO U.S.	147,013	276,448	191,940	377,800	290,398	539,370	91,624	421,964	96,336	466,593	65,432	272,691
	U.S. AS PERCENTAGE OF ALL COUNTRIES	93.5	87.5	93.0	88.4	95.7	91.5	83.8	84.0	86.4	85.4	91.0	87.8

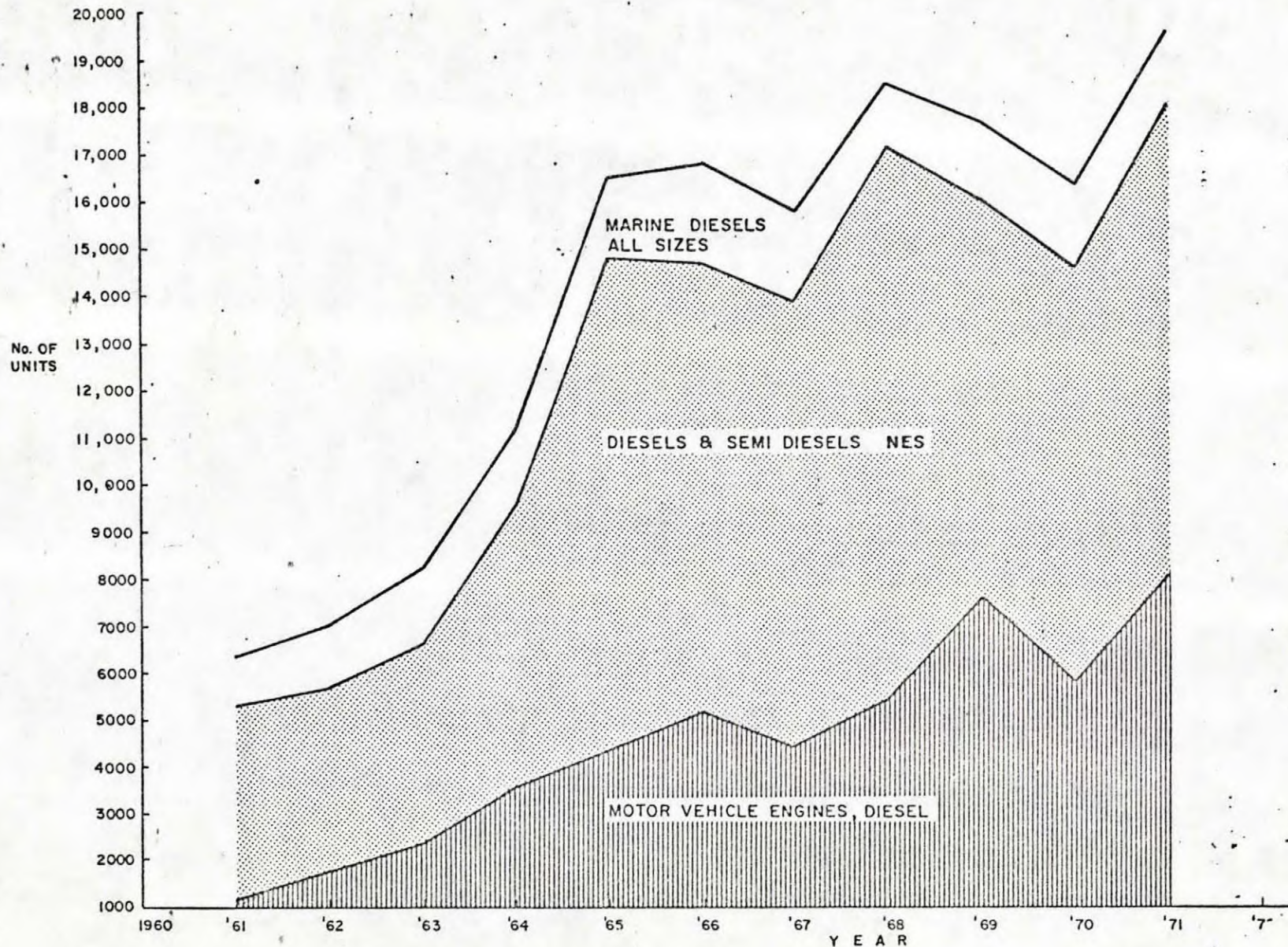
APPENDIX L

DIESEL ENGINE IMPORTS  
INTO CANADA BY TYPE 1961-1971



DIESEL ENGINE IMPORTS INTO CANADA BY TYPE 1961-1971

(A) UNITS

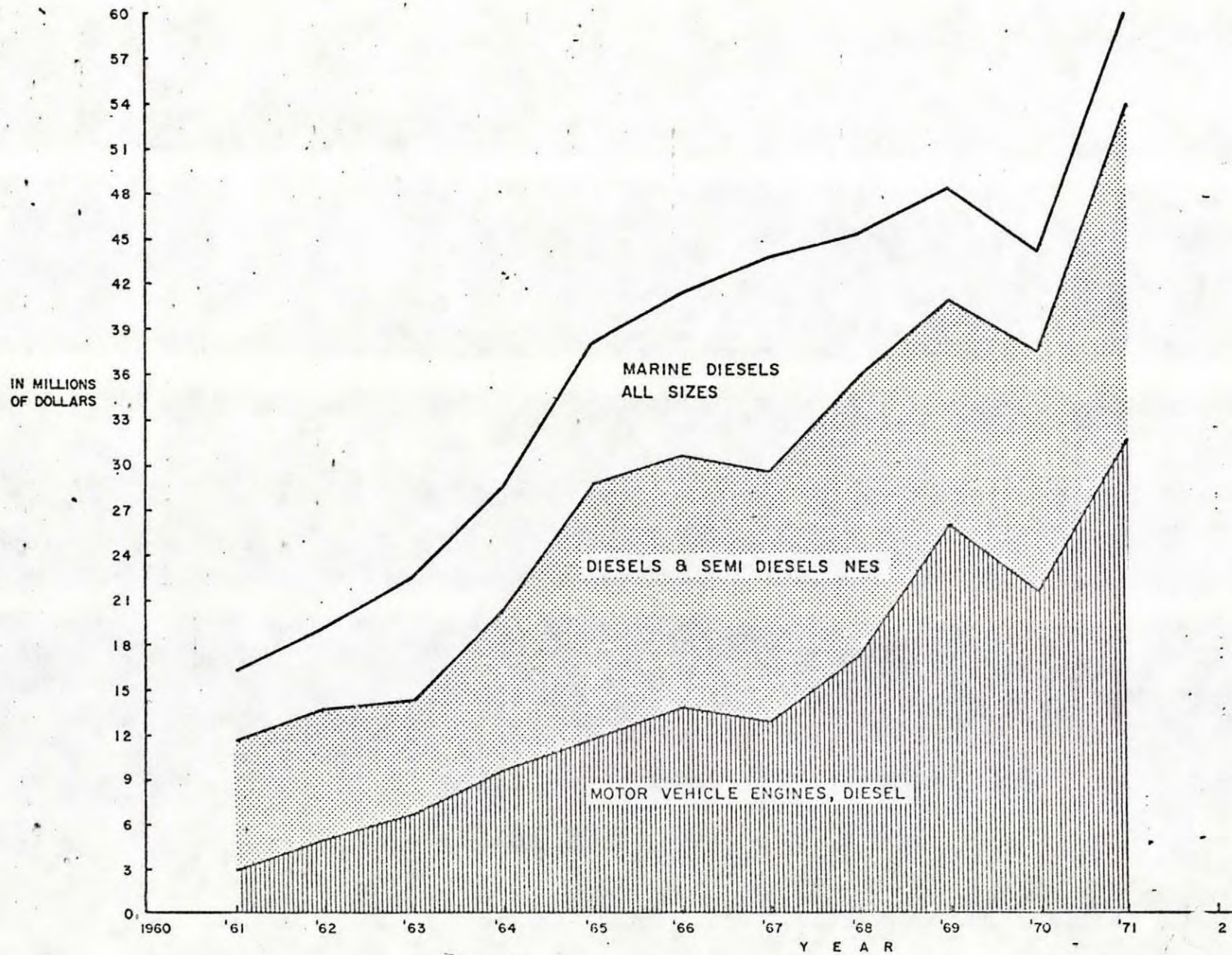




APPENDIX M

DIESEL ENGINE IMPORTS  
INTO CANADA BY TYPE 1961-1971

DIESEL ENGINE IMPORTS INTO CANADA BY TYPE 1961-1971 (B) VALUE



APPENDIX N

CAPITAL EXPENDITURES ON  
EQUIPMENT IN CONSTANT 1961 DOLLARS

CAPITAL EXPENDITURES ON EQUIPMENT IN CONSTANT 1961 DOLLARS

