
Canadian Market Opportunities— Import Profile



Government
of Canada

Regional Industrial
Expansion

Gouvernement
du Canada

Expansion industrielle
régionale

Canada The wordmark for Canada, with a small red maple leaf above the 'a'.

PHYSIOLOGICAL MONITORING AND
RECORDING EQUIPMENT,
ACCESSORIES AND PARTS

Pub. No: 63-86

June 1986

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PHYSIOLOGICAL MONITORING AND
RECORDING EQUIPMENT,
ACCESSORIES AND PARTS

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OR

The nearest DRIE Regional Office.
These offices are listed on the last
page of this publication.

REFERENCE SOURCES

Department of Regional Industrial Expansion
Statistics Canada
Revenue Canada

EXPLANATORY NOTES

Valuation

Imports are generally recorded at the values established for customs duty purposes according to the provisions of the Customs Act. Customs values are identical to selling prices for most transactions between non-affiliated companies, but customs values exceed selling prices for many transactions between affiliated companies. All values are reported in Canadian dollars and do not include duty.

Average Growth Rate

Growth rates are calculated on the basis of annual compounding.

Rounding

Figures may not add due to rounding.

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PUB. NO: 63-86
IMPORT COMMODITY CODES - 706-09-11
706-09-87
706-09-88
706-09-90

CANADIAN MARKET OPPORTUNITIES - IMPORT PROFILE

PHYSIOLOGICAL MONITORING AND
RECORDING EQUIPMENT, ACCESSORIES
AND PARTS

INTRODUCTION AND SCOPE

This report is one of a continuing series designed to increase business awareness of the potential existing for domestic production and to stimulate Canadian business to further explore potential opportunities in both the Canadian and export markets. It is important to emphasize that this report does not attempt any assessment as to the feasibility of manufacturing or competing in a particular market and should be treated as an indicator or starting point for the manufacturer or entrepreneur.

The following products are covered in this report:

Canadian
International
Trade
Classification
(C.I.T.C.)
Commodity
Code

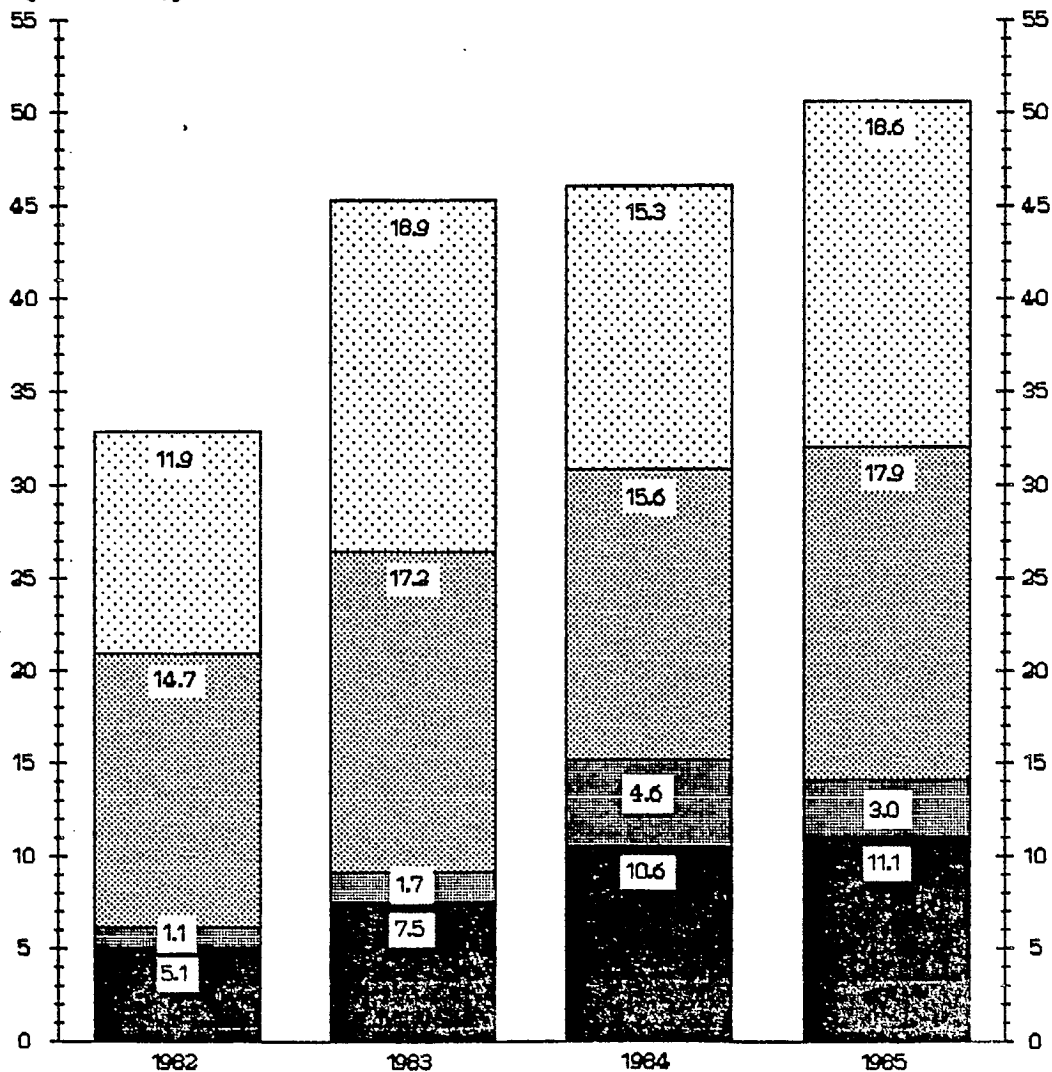
Product Description

706-09-11	Physiological Recording Equipment (Includes: cardiographs, cardiographs, electrocardiographs, electromyographs, electroencephalographs, physiological monitoring units, diagnostic polygraphs and vector cardiographs)
706-09-87	Physiological Monitoring/Recording Equipment Accessories (Includes: cardiac monitor electrodes)
706-09-88	Physiological Monitoring/Recording Equipment Parts, Not Elsewhere Specified (Includes: fetal pulse detectors, blood pressure and plethysmograph transducers)
706-09-90	Physiological Monitoring/Recording Equipment, Not Elsewhere Specified (Includes: medical signal averaging equipment, echoencephaloscopes, heart scopes, coronary care and fetal heart monitors, plethysmographs, electrotherapeutical equipment, mingographs and thermography instruments)

Cardiac defibrillators, heart pacemakers and pacemaker catheters are not considered in this report.

IMPORT TRENDS: OVERVIEW

VALUE (MILLION \$)

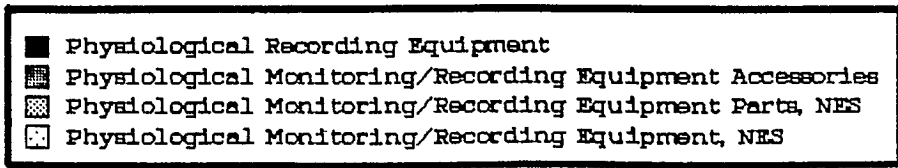


TOTAL
VALUE: 32.7

45.4

46.0

50.6



IMPORT TRENDS - SUMMARY
VALUE OF IMPORTS (\$000)

<u>C.I.T.C.</u> <u>Commodity</u> <u>Code</u>	<u>Description</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>Average</u> <u>Annual</u> <u>Growth Rate</u> <u>1982-1985</u> <u>%</u>	<u>Major Country</u> <u>of Export</u> <u>1985 Value</u> <u>(\$000)</u>
706-09-11	Physiological Recording Equipment	5 132	7 543	10 572	11 089	29	United States 10 149
706-09-87	Physiological Monitoring/Recording Equipment Accessories	1 064	1 742	4 592	3 030	42	United States 2 781
706-09-88	Physiological Monitoring/Recording Equipment Parts, Not Elsewhere Specified	14 656	17 178	15 567	17 884	7	United States 16 803
706-09-90	Physiological Monitoring/Recording Equipment, Not Elsewhere Specified	11 886	18 939	15 270	18 565	16	United States 16 293
TOTAL		32 738	45 402	46 001	50 568	16	United States 46 026

Imports of this total group of products rose from \$33 million in 1982 to \$45 million in 1983 (39 per cent increase for the year), followed by two years of more moderate increases to \$51 million in 1985.

The two main subgroups (i.e. Physiological Monitoring/Recording Equipment Parts, N.E.S. - commodity code 706-09-88; and Physiological Monitoring/Recording Equipment, N.E.S. - commodity code 706-09-90) account for most of the total value and followed patterns similar to those of the total.

Physiological Recording Equipment (commodity code 706-09-11) imports doubled between 1982 and 1984, stabilizing in 1985. Accessory imports (commodity code 706-09-87) fluctuated considerably, tending to be 5 to 10 per cent of the group total.

Throughout the four product subgroups the United States has been the overwhelming source of imports since 1982. In only two cases did the U.S. account for less than 90 per cent of the imports: in 1984 Ireland accounted for 17 per cent of the Accessories group; and in 1985 West Germany accounted for six per cent of the Equipment, N.E.S. group. (See Appendix A; pages 12-15, for more detailed data on imports by foreign country of export for each of the four product groups).

IMPORT MARKET CONCENTRATION
BY PRODUCT TYPE AND TOTAL
(CUMULATIVE PER CENT OF 1984 VALUE)

<u>PRODUCT AND C.I.T.C.</u>	<u>Top 5</u> <u>Importers</u>	<u>Top 10</u> <u>Importers</u>	<u>Top 20</u> <u>Importers</u>	<u>Top 40</u> <u>Importers</u>	<u>Total</u> <u>Number</u> <u>of known</u> <u>Importers-1984</u> <u>(100% of 1984</u> <u>import value)</u>
Physiological Recording Equipment (706-09-11) Value \$10.6 million (100%)	60	68	78	86	143
Physiological Monitoring/ Recording Equipment Accessories (706-09-87) Value \$4.6 million (100%)	85	91	95	98	69
Physiological Monitoring/ Recording Equipment Parts, Not Elsewhere Specified (706-09-88) Value \$15.6 million (100%)	60	77	89	95	166
Physiological Monitoring/ Recording Equipment, Not Elsewhere Specified (706-09-90) Value \$15.3 million (100%)	31	48	69	83	175
<hr/>					
TOTAL (All four products aggregated) Value \$46 million (100%)	43	57	74	84	304

The five major importers of Physiological Monitoring/Recording Equipment Accessories (706-09-87) accounted for 85 per cent or \$3.9 million of the total imports for this commodity. The ten major importers of physiological recording equipment (706-09-11) accounted for 68 per cent or \$7.2 million. The ten major importers of Physiological Monitoring/Recording Equipment, Parts Not Elsewhere Specified (706-09-88) accounted for 77 per cent or \$12 million of the total imports.

NOTE: "Top importers" are the known importers with the largest imports by value in 1984. For a list of Canadian importers in 1984, see Appendix C, page 18.

TYPE AND LOCATION OF THE 40 TOP KNOWN IMPORTERS - 1984
AGGREGATED DATA - ALL PRODUCTS
 (84% OF TOTAL IMPORT VALUE)

	<u>MANUFACTURERS</u>		<u>WHOLESALERS</u>		<u>OTHER (1)</u>		<u>TOTAL</u>	
	<u>No. of Importers</u>	<u>Value (\$000)</u>	<u>No. of Importers</u>	<u>Value (\$000)</u>	<u>No. of Importers</u>	<u>Value (\$000)</u>	<u>No. of Importers</u>	<u>Value (\$000)</u>
Ontario	6	4 841	17	25 456	5	2 884	28	33 181
Québec	3*	1 253*	4	2 832	-	-	12*	5 385*
Western Provinces			3	928	2	372		
TOTAL	9	6 094	24	29 216	7	3 256	40	38 566
Per cent of 1984 total value		13%		64%		7%		84%

(1) Includes hospitals

* Québec and Western Provinces aggregated to preserve confidentiality.

The top 40 importers of all four products in aggregate accounted for \$38.6 million or 84 per cent of the combined import total in 1984. Of these 40, nine were manufacturers whose total imports represented \$6.1 million or 13 per cent of the import total. Twenty-four of the top importers were wholesalers whose total imports represented \$29.2 million or 64 per cent of the total imports. Eighteen of these wholesalers were wholesalers of professional equipment and supplies. The 28 Ontario importers accounted for \$33.2 million or 72 per cent of the total imports. Eighteen of the top 40 importers were importers of all four products, while an additional eight importers imported three out of the four products.

CANADIAN PRODUCTION

The Canadian manufacturers are distributed by province as follows:

<u>Product</u>	<u>Nfld.</u>	<u>Number of Manufacturers by Province</u>			<u>Alberta</u>
		<u>Québec</u>	<u>Ontario</u>	<u>Manitoba</u>	
Physiological Recording Equipment (C.I.T.C. 706-09-11)	2	2	2	-	1
Physiological Monitoring/Recording Equipment Accessories (C.I.T.C. 706-09-87)	-	-	1	-	1
Physiological Monitoring/Recording Equipment Parts, n.e.s. (C.I.T.C. 706-09-88)	-	-	5	2	1
Physiological Monitoring/Recording Equipment, n.e.s. (C.I.T.C. 706-09-90)	-	8	12	1	5

One company produces all four products and six companies produce at least two of them. Statistics Canada does not publish specific production data for physiological monitoring/recording equipment. This equipment is included with many other products in the category "Dental, optical, surgical and medical instruments and apparatus."

EXPORTS

Statistics Canada does not publish export data for physiological monitoring/recording equipment. It is included in the export class "Medical and related instruments, equipment and parts, not elsewhere specified."

MARKET SUMMARY

The Products

This profile covers a broad range of physiological monitoring/recording equipment. Devices in this category include pulse, blood pressure, respiratory rate, temperature and cardiac monitors and recorders. Also included in this category are computerized devices which, in addition to the display and recording of physiological parameters, analyze trends, activate alarms and carry out analyses of waveforms, intervals and deviations.

A patient monitor will generally consist of:

- 1) A transducer to create an electrical signal representing a parameter (blood pressure, heart action, respiratory rate, temperature, etc.);
- 2) A "black box" which contains filters, signal conditioners and the other electronic circuits necessary to convert the transducer signals to a form suitable for display on a cathode ray tube and/or a paper or magnetic tape recorder, as well as the circuits necessary to activate alarms;
- 3) A bedside visual display of the parameters being monitored;
- 4) Frequently, particularly in Intensive Care Units (ICUs), a slave display unit or units where several patients may be monitored from a central station.

The bedside unit to which a patient is connected has a small display screen (usually eight inches by 10 inches) and an assortment of controls for sensitivity, calibration, record-no-record choices, alarm settings, etc.

Product Problems

Few safety problems are encountered with modern monitors, but designs must be such that there is never a possibility of stray electric currents which could enter a patient. Radio frequency interference is always a potential problem with devices of this nature, as readings could be distorted or rendered impossible to monitor. The considerable number of wires running from the transducers applied to a patient to the visual display device, is always a problem to the health care staff.

Technology

In all monitors, some device (a transducer) converts the parameter being measured into an electrical signal. This signal is amplified, filtered and then attenuated to a level suitable for display on a cathode ray screen. At the same time, these analog electrical signals may be digitized to allow electronic processing of the data to display both numbers and interpretative data such as trend lines.

MARKET SUMMARY (CONTINUED)

Transducers necessary to sense the signals generated by heart activity are currently manufactured in Canada. Sensors (transducers) for blood pressure, brain activity and muscle electrical signals are not currently manufactured here.

Signal conditioners and amplifiers are based on the same technology used in the handling of all electrical signals, and it would not be difficult for any Canadian electronics company to emulate current designs.

Display screens are also manufactured in Canada and could readily be modified to adapt them to the applications being discussed.

However, there is room for improvement in existing designs and for the introduction of new designs. The principal complaint of users of monitors is radio-frequency interference. A perfectly shielded monitor-display system would find a ready market anywhere in the world. The second major complaint concerning current devices is that add-ons are frequently incompatible with existing equipment. Ergonomic design errors inherent in present equipment create a basis for potential improvements.

Finally, industry has been slow to develop "wireless" connections, by radio telemetry or light, between patients and monitors. Such a step forward, which would eliminate cable and wires around a hospital bed, would be highly desirable and marketable.

Regulatory Environment

Hospitals generally require that monitors meet the standards of the Canadian Standards Association. The safety of such devices must be certified to the Bureau of Medical Devices of the Department of Health and Welfare and records kept testifying to the safety of the device. In addition, physiological monitoring devices must meet the standards of the Food and Drug Act (with respect to leakage of currents) for electromedical devices. The Food and Drug Administration in the United States indicates that all monitors are considered Class II devices (i.e. those for which mandatory standards have been established). Such standards include precise marking and labelling requirements, information to be included in instruction manuals, accuracy of calibration devices, allowable leakage of currents, etc.

Apparent Domestic Market

The Canadian market for medical monitoring devices is almost completely served by imported products. Identifiable imports totalled approximately \$46 million in 1984 and \$51 million in 1985. If one assumes a 33 per cent markup after importation, then the total cost to the Canadian health care system is some \$68 million annually. There is currently limited production in Canada of specialized ultrasonic monitors for fetal heart rate and for blood flow.

In 1985, imports of physiological monitoring/recording equipment and parts, distributed on the basis of hospital beds per province, would indicate that the market by province would be as follows (assuming a 33 per cent markup after importation):

(\$ MILLION)

<u>Nfld.</u>	<u>N.S.</u>	<u>P.E.I.</u>	<u>N.B.</u>	<u>Qué.</u>	<u>Ont.</u>	<u>Man.</u>	<u>Sask.</u>	<u>Alta.</u>	<u>B.C.</u>
1.48	.404	2.42	2.09	17.57	22.68	2.96	3.16	6.46	8.08

TOTAL \$67.3 million

MARKET SUMMARY (CONTINUED)

Monitors find many applications, particularly in Intensive Care Units (ICU) where a number of parameters for each patient may be measured and the results for all patients in an ICU displayed at a central console. Similar requirements may exist in recovery rooms and during surgery, while a patient is under general anaesthesia. It is unusual not to measure blood pressure simultaneously at several points in the body, as well as heart rate, heart rhythm and respiratory rate.

Monitoring equipment has a short life span and is constantly being superseded by "new" and "better" equipment. Seven-year-old equipment is considered "old" equipment. However, new technology is not necessarily readily accepted by physicians. To offset this conservatism, manufacturers attempt to design units of greater operating simplicity. At the same time, there is a trend toward increased use of computer-based technology to provide physicians with interpretative as well as specific data. For instance, integral software will calculate and display trends for a considerable time period--up to several hours. In addition, depending upon the desire of governments to increase home patient care programs, health care planners are predicting a large increase in the market for monitors, particularly portable (ambulatory) recording type monitors of heart functions for diagnostic purposes and for monitoring of treatment regimes.

Tariffs and Other Trade Considerations

Monitors enter Canada free of import duty. No federal or provincial sales taxes are levied on such equipment. The rate of duty into the United States is 4.7 per cent.

Competitive Factors

This market is dominated by an aggressive and competent United States' company, Hewlett Packard Inc. Other suppliers such as Honeywell Ltd., Medical Electronics Division, and Medtronic Inc., are almost universally United States based and are also well recognized and well received by the medical profession.

In addition to the United States competition, preference exists for equipment which is universally recognized in all countries and on which many health care professionals received training. Positive evaluations carried out by recognized and respected physicians would help to introduce a good or better Canadian product to the world market.

One must recognize at the outset the immediate price competition which would be generated by the threat to current suppliers from a domestic source. There is considerable latitude in the prices charged to Canadian hospitals by American and overseas suppliers which would allow such suppliers to reduce prices drastically, to attempt to thwart the inroads of a Canadian manufacturer into this market. However, opportunities exist for innovative Canadian companies with the financial strength and the technological background to enter the physiological monitoring and recording equipment market, particularly in the areas of licensing arrangements with large overseas suppliers, development of new products, and the assignment of product mandates by the parents of Canadian subsidiary or affiliate companies.

This report was prepared by:

the Market Development Branch
in collaboration with the
Health Care Products Division,
Resource Processing Industries Branch.

DEPARTMENT OF REGIONAL INDUSTRIAL EXPANSION

VALUE OF IMPORTS BY MAJOR FOREIGN COUNTRY OF EXPORT

RECORDING EQUIPMENT, PHYSIOLOGICAL

<u>Foreign Country of Export</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>Average Annual Growth Rate 1982-1985 %</u>	<u>Per cent Change 1984-1985 %</u>
UNITED STATES Value (\$000)	4 660	6 849	9 509	10 149	30	7
JAPAN Value (\$000)	256	66	341	277	3	-19
SWITZERLAND Value (\$000)	10	8	239	125	132	-48
GERMANY, WEST Value (\$000)	66	473	127	162	35	28
UNITED KINGDOM Value (\$000)	21	14	137	201	112	47
OTHER Value (\$000)	119	133	219	175	14	-20
TOTAL Value (\$000)	5 132	7 543	10 572	11 089	29	5

VALUE OF IMPORTS BY MAJOR FOREIGN COUNTRY OF EXPORT

PHYSIOLOGICAL MONITORING/RECORDING EQUIPMENT ACCESSORIES

<u>Foreign Country of Export</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>Average Annual Growth Rate 1982-1985 %</u>	<u>Per cent Change 1984-1985 %</u>
UNITED STATES Value (\$000)	950	1 537	3 690	2 781	43	-25
IRELAND Value (\$000)	0	110	780	125	N/A	-84
SWITZERLAND Value (\$000)	62	0	15	37	-16	147
AUSTRIA Value (\$000)	0	0	0	33	N/A	N/A
OTHER Value (\$000)	52	95	107	54	1	-50
TOTAL Value (\$000)	1 064	1 742	4 592	3 030	42	-34

N/A - Not applicable

VALUE OF IMPORTS BY MAJOR FOREIGN COUNTRY OF EXPORT

PHYSIOLOGICAL MONITORING/RECORDING EQUIPMENT PARTS, N.E.S.

<u>Foreign Country of Export</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>Average Annual Growth Rate 1982-1985 %</u>	<u>Per cent Change 1984-1985 %</u>
UNITED STATES Value (\$000)	13 845	15 921	14 389	16 803	7	17
GERMANY, WEST Value (\$000)	58	48	154	342	81	122
PUERTO RICO Value (\$000)	585	760	626	225	-27	-64
JAPAN Value (\$000)	8	66	18	117	145	550
THE NETHERLANDS Value (\$000)	119	71	134	93	-8	-31
OTHER Value (\$000)	41	312	246	304	95	24
TOTAL Value (\$000)	14 656	17 178	15 567	17 884	7	15

VALUE OF IMPORTS BY MAJOR FOREIGN COUNTRY OF EXPORT
PHYSIOLOGICAL MONITORING/RECORDING EQUIPMENT, N.E.S.

<u>Foreign Country of Export</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>Average Annual Growth Rate 1982-1985 %</u>	<u>Per cent Change 1984-1985 %</u>
UNITED STATES Value (\$000)	10 751	17 587	14 415	16 293	15	13
GERMANY, WEST Value (\$000)	114	115	116	1 075	111	827
JAPAN Value (\$000)	162	439	332	494	45	49
UNITED KINGDOM Value (\$000)	25	130	178	191	97	7
PUERTO RICO Value (\$000)	0	2	41	180	N/A	339
OTHER Value (\$000)	834	666	188	332	-26	77
TOTAL Value (\$000)	11 886	18 939	15 270	18 565	16	22

N/A - Not applicable

CANADIAN TARIFFS, 1986

Tariff Item	Description	% of Total Import Value (1984)	TARIFF TREATMENT				
			British Prefer- ential Tariff	U.K. and Ireland	Most Favoured Nation Tariff	General Tariff	General Prefer- ential Tariff
			%	%	%	%	%
47600-01	X-ray apparatus and X-ray film; microscopes, illuminating devices and stands for use therewith; the following surgical, dental, veterinary and diagnostic articles: instruments; sterilizers; cobalt-therapy units, anaesthesia, surgical suction and oxygen administering apparatus including motive power and wall outlets but not piping systems. Parts of all the foregoing; electric light lamps designed for use with all the foregoing; portable cases and containers for all the foregoing	86.2	Free	Free	Free	Free	Free
47900-01	Materials and articles for use exclusively in the manufacture of the goods enumerated in tariff items 47600-01, 47605-01, 47805-01, 47810-01, 47815-01, 47820-01, 47826-01, 47830-01 and 47835-01	7.5	Free	Free	Free	Free	Free
47810-01	Aural, nasal, mastectomy and other medical or surgical prostheses, other than dental prostheses; materials for use in reconstructive surgery, other than dental surgery; ileostomy, colostomy and urinary appliances or articles, other than infants' pants and diapers, designed to be worn by an individual; materials and articles required therewith for proper application and maintenance	2.8	Free	Free	Free	Free	Free

CANADIAN TARIFFS, 1986 (CONTINUED)

Tariff Item	Description	% of Total Import Value (1984)	TARIFF TREATMENT				
			British Prefer- ential Tariff %	U.K. and Ireland %	Most Favoured Nation Tariff %	General Tariff %	General Prefer- ential Tariff %
47605-01	Operating room lights designed to minimize shadow, not including bulbs, of a class or kind not made in Canada; chairs and tables for surgical operating purposes; infant incubators; infant and patient medical-alert or identification devices including beads, tapes and ribbons of any material, cases therefor and equipment for their application; electrocardiographs, paper and sensitized film for use therein; unexposed instant film; apparatus for sterilizing purposes, including bedpan washer-sterilizers but not including washing nor laundry machines; parts of all the foregoing; electroencephalographic paper. All for the use of any public hospital, under such regulations as the Minister may prescribe	1.5	Free	Free	Free	Free	Free

Tariff Arrangements and Foreign Countries of Export:

MOST FAVOURED NATION: UNITED STATES, JAPAN, SWITZERLAND, WEST GERMANY,
AUSTRIA, PUERTO RICO, THE NETHERLANDS
MOST FAVOURED NATION OR U.K. AND IRELAND: UNITED KINGDOM, IRELAND

ENQUIRIES CONCERNING TARIFFS SHOULD BE DIRECTED TO THE NEAREST CUSTOMS AND EXCISE OFFICE OR TO:

TARIFF PROGRAMS
REVENUE CANADA
CUSTOMS AND EXCISE
OTTAWA, ONTARIO
K1A 0L5
TEL: (613) 996-9478

CANADIAN IMPORTERS

Importers of Physiological Monitoring and Recording Equipment, Accessories and Parts as indicated in this report during 1984 are listed below in alphabetical order. This list includes all importers except individuals and a minimal number of importers whose names were not available. The number in brackets following the names of the importers indicate the specific types of equipment they are importing as follows: (1) Physiological Recording Equipment; (2) Physiological Monitoring/Recording Equipment Accessories; (3) Physiological Monitoring/Recording Equipment Parts, Not Elsewhere Specified; and (4) Physiological Monitoring/Recording Equipment, Not Elsewhere Specified.

<u>Name</u>	<u>Address</u>	<u>Name</u>	<u>Address</u>
116844 Canada Ltd.(4)	Downsview, Ont.	Board of Education Borough of	Scarborough, Ont.
253992 Ontario Ltd.(1)(4)	Toronto, Ont.	Scarborough(4)	
3M Canada Inc.(3)	London, Ont.	Boehringer Ingelheim	
A M G Sales Agency Inc.(1)(3)	Montréal, Qué.	Canada Ltd.(3)(4)	Burlington, Ont.
Abbott Laboratories Ltd.(1)(2)	Montréal, Qué.	British Columbia Institute of	
Alberta Anaesthesia &		Technology(1)(2)(4)	Burnaby, B.C.
Respiratory Co. Ltd.(4)	Calgary, Alta.	Brown Boveri Canada Inc.(1)(3)	Pointe-Claire, Qué.
Alberta Respiratory Services		Bruel & Kjaer Canada Ltd.(3)	Pointe-Claire, Qué.
Associates Ltd.(3)(4)	Edmonton, Alta.	Bryant Medical Products	
Alcoholism and Drug Addiction		Ltd.(3)(4)	Mississauga, Ont.
Research Foundation(1)	Toronto, Ont.	Buchan Instruments Inc.(3)	Pickering, Ont.
Allen Crawford Associates		Burnaby Hospital(1)	Burnaby, B.C.
Ltd.(3)(4)	Mississauga, Ont.	Burroughs Wellcome Ltd.(3)	Kirkland, Qué.
American Hospital Supply		Burrows Medical Oxygen Ltd.(4)	Toronto, Ont.
Canada Ltd.(3)	Mississauga, Ont.	C A E Equipment, A Division	
American Hospital Supply Canada		of C A E Electronics Ltd.(4)	Vancouver, B.C.
Ltd., Div. of McGraw Supply		CCSD Management Ltd.(1)	Okotoks, Alta.
Ltd.(1)(3)(4)	Brantford, Ont.	Calgary General Hospital(4)	Calgary, Alta.
Amoco Canada Petroleum Co.		Calgary Separate School	
Ltd.(1)	Calgary, Alta.	Board(4)	Calgary, Alta.
Animated Electronics Inc.(4)	Port Moody, B.C.	Cambridge Instruments Canada	
Arnold Farm Vet Ltd.(3)	Guelph, Ont.	Inc.(4)	Montréal, Qué.
Avenue Medical Supply Agency		Can-Med Surgical Supplies	
Ltd.(1)	Toronto, Ont.	Ltd.(2)	Halifax, N.S.
B C Medical Equipment Ltd.(4)	Vancouver, B.C.	Canada Microsurgical Ltd.(4)	Burlington, Ont.
Babcock Wilcox Canada Ltd.(4)	Galt, Ont.	Canadian Cardiovascular	
Baker Healthcare Products		Products Ltd.(3)(4)	Mississauga, Ont.
Ltd.(1)(2)(3)	Vancouver, B.C.	Canadian Dental Supplies	
Bard Canada Inc.(4)	Mississauga, Ont.	Alberta Ltd.(1)	Sherwood Park, Alta.
Baytronix Ltd.(1)(4)	Montréal, Qué.	Canadian Howmedica Ltd.(1)(3)(4)	Guelph, Ont.
Beckman Instruments Inc.(1)(3)	Toronto, Ont.	Canadian NDE Technology Ltd.(3)	Rexdale, Ont.
Bell Textile Ltd.(4)	Bramalea, Ont.	Canadian National Railways(3)	Montréal, Qué.
Bio-Mega Inc.(1)	Montréal, Qué.	Canadian Therapy Supply(3)	Peterborough, Ont.
Bioimplant Canada Inc.(3)	St-Hyacinthe, Qué.	Cancer Control Agency of B.C.(4)	Vancouver, B.C.
Biomedical Engineering Shared		Candie Medical Inc.	St-Laurent, Qué.
Service Inc.(3)	Toronto, Ont.	Canon Canada Inc.(3)(4)	Mississauga, Ont.
Biomedical Instrumentation		Centre Hosp. Rég. Baie	
Inc.(4)	Willowdale, Ont.	Comeau(1)(3)	Hauterive, Qué.
Bionetics Ltd.(1)(2)(3)(4)	St-Laurent, Qué.	Centre Hospitalier	
Biosig Instruments Inc.(1)	Montréal, Qué.	Universitaire(1)	Sherbrooke, Qué.
Blair Medical Specialties		Centre Hospitalier	
Ltd.(2)(3)(4)	Toronto, Ont.	Ste-Marie(1)(3)(4)	Trois Rivières, Qué.

Canadian Importers (Continued)

<u>Name</u>	<u>Address</u>	<u>Name</u>	<u>Address</u>
Centre Hospitalier Régionale de Rimouski(1)(3)	Rimouski, Qué.	Fielding Crossman & Associates Ltd.(3)	Willowdale, Ont.
Childrens Hospital of Eastern Ontario(3)	Ottawa, Ont.	Fish and Wildlife Branch(4)	Nanaimo, B.C.
Childrens Hospital(3)(4)	Vancouver, B.C.	Fisher Scientific Co. Ltd.(2)(3)	Ottawa, Ont.
Cilco Canada Inc.(3)(4)	Pickering, Ont.	Foothills Provincial General Hospital(1)	Calgary, Alta.
City of Calgary(3)	Calgary, Alta.	Force 3 Medical Inc.(2)(4)	Pierrefonds, Qué.
City of Regina(3)	Regina, Sask.	Forma Scientific, Div. Mallinckrodt Inc.(3)(4)	Fort Erie, Ont.
City of Winnipeg(1)(3)	Winnipeg, Man.	Foxboro Canada Inc.(3)	Montréal, Qué.
Clift, T.B. Ltd.(1)(2)(3)	St. John's, Nfld.	Gambro Canada Ltd.(4)	Mississauga, Ont.
Clift, T.B. Surgical Ltd.(1)(3)	Halifax, N.S.	General Electric Medical Systems Ltd.(4)	Milwaukee, WI, USA*
Club Nautilus d'Anjou Inc.(4)	Brossard, Qué.	General Hospital(4)	Thunder Bay, Ont.
Columbia Centre for Pain & Stress Management Ltd.(3)	Vancouver, B.C.	Génie Audio Inc.(1)(2)(4)	Montréal, Qué.
Concordia University(4)	Montréal, Qué.	Goring Kerr Canada Inc.(4)	Scarborough, Ont.
Cook (Canada) Inc.(3)	Markham, Ont.	Gould Shawmut Co., Div. of Gould Electronics (Canada) Ltd.(3)	Toronto, Ont.
Cordis Brent Inc.(1)(3)(4)	Toronto, Ont.	Govt. of the Prov. of Nfld & Lab(4)	St. Johns, Nfld.
Corp. de l'Hôpital de Sept-Iles(3)	Sept-Iles, Qué.	Grace Hospital(3)	Vancouver, B.C.
Coulter Electronics of Canada Ltd.(3)(4)	Burlington, Ont.	Graphic Controls Canada Ltd.(1)(2)(3)(4)	Gananoque, Ont.
Dalhousie University(1)(2)(3)(4)	Halifax, N.S.	Grass Instrument of Canada(1)(3)	Toronto, Ont.
Dantec Electromedical and Scientific Equipment Ltd.(1)(2)(3)(4)	Scarborough, Ont.	Greater Niagara General Hospital(1)(3)	Niagara Falls, Ont.
Dartmouth General Hospital(4)	Dartmouth, N.S.	Gregory System Ltd.(4)	Houston, TX, USA*
Dentsply Canada Ltd.(4)	Downsview, Ont.	Griffin Canada Inc.(3)	St-Hyacinthe, Qué.
Department of National Defence(1)(2)(3)(4)	Ottawa, Ont.	Halifax Infirmary(2)(3)	Halifax, N.S.
Diasonics Inc.(4)	Sunnyvale, CA, USA*	Hamilton Civic Hospital(1)	Hamilton, Ont.
Digidyne Inc.(3)	Lachine, Qué.	Harco Electronics Ltd.(3)	Winnipeg, Man.
Digital Systems and Applications Inc.(4)	Toronto, Ont.	Health Sciences Center Hospital(4)	Vancouver, B.C.
Dismed Inc.(1)	Montréal, Qué.	Heath Company, Div. of Zenith Radio Canada Ltd.(4)	Toronto, Ont.
Doctor Everett Chalmers Hospital(1)(3)	Fredericton, N.B.	Hepburn, John T. Ltd.(3)	Toronto, Ont.
Dorlon Products (Canada) Ltd.(4)	Richmond, B.C.	Hewlett-Packard (Canada) Ltd.(1)(2)(3)(4)	Mississauga, Ont.
Downs Surgical Canada Ltd.(2)	Mississauga, Ont.	Honeywell Controls Ltd.(3)	Willowdale, Ont.
Dumex Medical Surgical Products Ltd.(2)	Scarborough, Ont.	Honeywell Limited, Medical Electronics Division(3)(4)	Mississauga, Ont.
Dupont Canada Inc.(4)	Mississauga, Ont.	Hôpital Général Juif Sir M.B. Davis(2)	Montréal, Qué.
Dynetech Ltd.(2)(3)(4)	Toronto, Ont.	Hôpital Général d'Ottawa(4)	Ottawa, Ont.
Éditions Fremontel Inc.(4)	Montréal, Qué.	Hôpital Hôtel Dieu(1)(3)	Sherbrooke, Qué.
Edmonton General Hospital(3)	Edmonton, Alta.	Hôpital Laval(1)(3)(4)	Québec, Qué.
Elscint Canada Ltd.(1)	Markham, Ont.	Hôpital Notre-Dame(2)	Montréal, Qué.
Emery Air Freight Corp.(2)	Scranton, PA, USA*		
Etobicoke General Hospital(1)(3)	Rexdale, Ont.		
Extracorporeal Inc.(4)	Markham, Ont.		

Canadian Importers (Continued)

<u>Name</u>	<u>Address</u>	<u>Name</u>	<u>Address</u>
Hôpital Reine-Elizabeth de Montréal(4)	Montréal, Qué.	Mechanix Distributors Inc.(1)(3)(4)	Toronto, Ont.
Hôpital St. François d'Assise(1)	Québec, Qué.	Med Ex Diagnostic of Canada Inc.(3)(4)	Coquitlam, B.C.
Hôpital des Laurentides(1)	L'Annonciation, Qué.	Medical Mart Supplies Ltd.(1)	Mississauga, Ont.
Hoskin Scientific Ltd.(1)	Oakville, Ont.	Medical and Dental Instruments Co.(1)(3)	Willowdale, Ont.
Hospital For Sick Children(1)(2)(3)(4)	Toronto, Ont.	Medicana Inc.(2)	St-Laurent, Qué.
Hôtel Dieu de Montréal(3)	Montréal, Qué.	Médigas (Québec) Ltd.(4)	St-Laurent, Qué.
Hydra-Gym Canada Ltd.(4)	Sherwood Park, Alta.	Medigas Eastern Ontario Ltd.(4)	Ottawa, Ont.
I C Controls Ltd.(3)	Orangeville, Ont.	Medigas Hamilton Ltd.(1)(2)(3)(4)	Hamilton, Ont.
Imed Canada Inc.(1)(3)(4)	Scarborough, Ont.	Medigas Ltd.(4)	Toronto, Ont.
In-Vent Marketing(3)(4)	Maple Ridge, B.C.	Medtronic of Canada Ltd.(1)(2)(3)(4)	Mississauga, Ont.
Ingram & Bell Ltd.(1)(2)(3)(4)	Don Mills, Ont.	Meier Medical Supplies Ltd.(3)(4)	Maple Ridge, B.C.
Ingram, G.A. Co. (Canada) Ltd.(1)	Windsor, Ont.	Merck Frosst Canada Inc.(3)	Pointe-Claire, Qué.
Institut de Cardiologie de Montréal(1)(3)(4)	Montréal, Qué.	Metex Corp. Ltd.(1)	Weston, Ont.
Instrument Service Laboratories Ltd.(1)(3)(4)	Richmond, B.C.	Metro Edmonton Hospital(1)	Edmonton, Alta.
Intertechnology Ltd.(3)	Don Mills, Ont.	Metro-Calgary & Rural Hospital(4)	Calgary, Alta.
Irwin Toy Ltd.(4)	Toronto, Ont.	Miles Laboratories Ltd.(2)	Rexdale, Ont.
Ivac Division Eli Lilly Canada Inc.(3)(4)	Agincourt, Ont.	Misericordia Hospital(2)	Winnipeg, Man.
James International Canada Inc.(4)	Burnaby, B.C.	Mono Research Laboratories Ltd.(3)	Brampton, Ont.
K D M (Drug Stores) Ltd.(4)	Mississauga, Ont.	Monte Scientific Instruments Inc.(1)(2)(3)(4)	Montréal, Qué.
Kendall Canada(4)	Toronto, Ont.	Montréal Childrens Hospital(4)	Montréal, Qué.
Kingston General Hospital(1)(4)	Kingston, Ont.	Montréal Creative Consortium(4)	Montréal, Qué.
Kontron Scientific Ltd.(1)(2)(3)(4)	Toronto, Ont.	Montréal General Hospital(1)(2)	Montréal, Qué.
Laborie, Ray & Associés Inc.(4)	Brossard, Qué.	Montréal Neurological Hospital(1)(2)(3)	Montréal, Qué.
Lectec Ltd.(1)	Mississauga, Ont.	Moose Jaw Union Hospital(4)	Moose Jaw, Sask.
Les Industries Technolab Ltée(1)	Montréal, Qué.	Morgan Welding Supply Co. Ltd.(4)	Sault Ste-Marie, Ont.
Les Placements Noel Bédard Ltée(2)	Montréal, Qué.	Mount Sinai Hospital(2)(4)	Toronto, Ont.
Lilly, Eli Canada Inc.(3)(4)	Scarborough, Ont.	Nanaimo Regional General Hospital(1)	Nanaimo, B.C.
London Drugs Ltd.(4)	Richmond, B.C.	Narco Medical Servs., Oiv. of Air-Shields (Canada) Ltd.(1)(2)(3)(4)	Ownsview, Ont.
London Health Association(1)(3)	London, Ont.	National Research Council(3)	Ottawa, Ont.
MOS Laboratories Ltd.(1)	Rexdale, Ont.	Nicolet Instrument Canada Ltd.(3)(4)	Mississauga, Ont.
Major Medical Supplies Ltd.(1)(4)	Hamilton, Ont.	Nihon Kohden (America) Inc.(1)	Vancouver, B.C.
Matériel Médical Laval Inc.(2)(4)	Laval, Qué.	North York General Hospital(1)	Willowdale, Ont.
McGill University(3)(4)	Montréal, Qué.	Nova Scotia Association of Health Organizations(3)	Halifax, N.S.
McKellar General Hospital(1)	Thunder Bay, Ont.		
McMaster University(1)(3)(4)	Hamilton, Ont.		

Canadian Importers (Continued)

<u>Name</u>	<u>Address</u>	<u>Name</u>	<u>Address</u>
OHMEDA(1)(3)(4)	Rexdale, Ont.	Saskatchewan Roughrider Football Club(4)	Regina, Sask.
Oakville-Trafalgar Memorial Hospital(1)	Oakville, Ont.	Sault Ste-Marie and District Group Health Association(2)(3)	Sault Ste-Marie, Ont.
Old Laurel Investments Ltd.(4)	Markham, Ont.	Schaan Healthcare Products Inc.(4)	Saskatoon, Sask.
Ongwanada Hospital(3)	Kingston, Ont.	Siemens Electric Ltd.(1)	Pointe-Claire, Qué.
Ontario Hydro(3)	Toronto, Ont.	Siemens Electric Ltd.(2)(3)(4)	Mississauga, Ont.
Overseas Monitor Corp. Ltd.(3)(4)	Vancouver, B.C.	Simon Fraser University(4)	Burnaby, B.C.
Peterboro Civic Hospital(1)	Peterborough, Ont.	Squibb, E.R. & Sons Ltd.(1)(3)	St-Laurent, Qué.
Pharmacia (Canada) Ltd.(4)	Dorval, Qué.	St. Francis Xavier University(4)	Antigonish, N.S.
Philips Electronics Ltd.(1)(2)(3)(4)	Scarborough, Ont.	St. Paul's Hospital(4)	Vancouver, B.C.
Picker International Canada Inc.(1)(2)(3)(4)	Bramalea, Ont.	St. Boniface General Hospital(1)(3)(4)	Winnipeg, Man.
Prairie Medical Ltd.(1)(2)(3)(4)	Edmonton, Alta.	St. Joseph's Hospital(1)(4)	Hamilton, Ont.
Precision Ltd.(3)	Winnipeg, Man.	St. Joseph's Hospital(2)	Chatham, Ont.
Prince George Regional Hospital(1)	Prince George, B.C.	St. Mary's Hospital(1)	Kitchener, Ont.
Province of Nova Scotia, Department of Finance(3)(4)	Halifax, N.S.	St. Michael's Hospital(2)(4)	Toronto, Ont.
Province of Ontario, Ministry of Government Services(1)	Toronto, Ont.	Standard Medical Supply Ltd.(1)(4)	Calgary, Alta.
Puritan-Bennett Ltd.(4)	Overland Park, KA, USA*	Starkman Surgical Supply Ltd.(2)(4)	Toronto, Ont.
Qualité N D E Ltée(3)	Mercier, Qué.	Stearns Catalytic Ltd., Air Products Division(3)	Allentown, PA, USA*
Québeurope Importations Inc.(4)	Montréal, Qué.	Sterisystems Ltd.(1)(2)(3)(4)	Mississauga, Ont.
Queen Elizabeth Hospital(4)	Charlottetown, PEI	Stevens Alberta Co. Ltd.(1)(3)(4)	Calgary, Alta.
Queensway-Carleton Hospital(1)(3)	Ottawa, Ont.	Stevens and Son Ltd.(1)(3)(4)	Winnipeg, Man.
Quinton Instrument Co.(1)(3)	Seattle, WA, USA*	Stevens, B.C. Co. Ltd.(1)	Vancouver, B.C.
Radionics Medical Inc.(3)	Scarborough, Ont.	Stevens, J. & Son Co. Ltd.(1)(3)(4)	Bramalea, Ont.
Rayvon Electronics Ltd.(2)(3)(4)	Mississauga, Ont.	Strong Enterprises Ltd.(4)	Mississauga, Ont.
Régent St-Pierre Inc.(4)	Montréal, Qué.	Sunnybrook Hospital(1)	Toronto, Ont.
Regina General Hospital(1)(4)	Regina, Sask.	Swedish Trade Commissioner(4)	Toronto, Ont.
Rico Medical Ltd.(2)(4)	St-Laurent, Qué.	Technicare Corporation(3)(4)	Concord, Ont.
Roberts, F.W. Mfg. Co. Ltd.(3)(4)	Lockport, NY, USA*	Technicon Canada Inc.(1)(3)(4)	Montréal, Qué.
Roxon Medi-Tech Ltée(1)(2)(3)	St-Léonard, Qué.	Techno Labs Industries Ltd.(1)(4)	Montréal, Qué.
Royal Canadian Mounted Police(1)	Ottawa, Ont.	Teletronics Proprietary (Canada) Ltd.(1)(2)(3)	Thornhill, Ont.
Royal Inland Hospital(3)	Kamloops, B.C.	The Doctors Hospital(1)	Toronto, Ont.
Royal Jubilee Hospital(1)(2)	Victoria, B.C.	The Health Sciences Centre(2)(3)(4)	Winnipeg, Man.
Royal Ottawa Hospital(1)(3)(4)	Ottawa, Ont.	The Izaak Walton Killam Hospital for Children(1)	Halifax, N.S.
Royal Victoria Hospital(1)	Barrie, Ont.	The University of Alberta(1)(4)	Edmonton, Alta.
Royal Victoria Hospital(3)(4)	Montréal, Qué.	The University of British Columbia(4)	Vancouver, B.C.
Saint John Regional Hospital(4)	St. Johns, Nfld.		
Salvation Army Grace Hospital(1)	Calgary, Alta.		
Sanyo Canada Inc.(4)	Toronto, Ont.		
Sarnia General Hospital(3)	Sarnia, Ont.		

Canadian Importers (Continued)

<u>Name</u>	<u>Address</u>
The Wellesley Hospital(1)	Toronto, Ont.
Thought Technology Ltd.(4)	Montréal, Qué.
Toronto General Hospital (1)(2)(3)(4)	Toronto, Ont.
Toronto Rehabilitation Centre(1)	Toronto, Ont.
Toronto Western Hospital(1)(2)	Toronto, Ont.
Toshiba International Corp.(1)(3)(4)	Vancouver, B.C.
Toshiba Medical Systems Inc.(1)	Vancouver, B.C.
Toshiba Medical Systems(4)	Tustin, CA, USA*
Travenol Canada Inc.(3)	Mississauga, Ont.
Trudell, George S. Co. Ltd.(1)(2)(3)(4)	London, Ont.
Universal X-Ray of Canada Ltd.(1)(3)	Dorval, Qué.
Université d'Ottawa(1)(3)	Ottawa, Ont.
Université de Montréal(1)(4)	Montréal, Qué.
University Hospital(1)	Saskatoon, Sask.
University of Alberta Hospital(1)(3)	Edmonton, Alta.
University of British Columbia(3)	Vancouver, B.C.
University of Calgary(3)	Calgary, Alta.
University of Manitoba(1)(3)	Winnipeg, Man.
University of Saskatchewan(3)	Saskatoon, Sask.
University of Toronto(1)(3)(4)	Toronto, Ont.
University of Western Ontario(1)(3)	London, Ont.
University of Windsor(3)	Windsor, Ont.
Vancouver General Hospital(2)(3)(4)	Vancouver, B.C.
Vereburn Supply Ltd.(2)(3)(4)	Calgary, Alta.
Victoria General Hospital(2)(3)	Victoria, B.C.
Victoria Hospital Corp.(1)(3)(4)	London, Ont.
Westech Industrial Ltd.(4)	Calgary, Alta.
Western Memorial Hospital(2)	Corner Brook, Nfld.
White Cross Surgical Instruments Co. Ltd.(1)	Toronto, Ont.
Wilder Medical Supplies Ltd.(1)	Kitchener, Ont.
Winkler District Hospital(3)	Winkler, Man.
Womens College Hospital(1)(4)	Toronto, Ont.
Y M C A(1)	Toronto, Ont.
York X-Ray Management(3)	Willowdale, Ont.
York-Finch General Hospital(4)	Downsview, Ont.

* Non-resident importer

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