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COMMUNICATIONS EQUIPMENT MANUFACTURERS

1960

First issue. This is one of a series of eight new reports formerly included in 43-201-Electrical Apparatus and Supplies Industry. 43-201 will in future contain the general review for the industries which comprise the Electrical Products Industries Group, and will be the last report to be released. For a list of the new reports see inside front cover.

ANNUAL CENSUS OF MANUFACTURES

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- 43-201 Electrical Products Industry-General Review
- 43-203 Manufacturers of Small Electrical Appliances
- 43-204 Manufacturers of Major Appliances (electric and non-electric)
- 43-205 Manufacturers of Household Radio and Television Receivers
- 43-206 Communications Equipment Manufacturers
- 43-207 Manufacturers of Electrical Industrial Equipment
- 43-208 Battery Manufacturers
- 43-209 Manufacturers of Electric Wire and Cable
- 43-210 Manufacturers of Miscellaneous Electrical Products

1960 issues of these reports will be sent on release to all subscribers for 43-201 - Electrical Apparatus and Supplies Industry. For 1961 issues, subscribers will be asked to select the reports they wish to receive.

SYMBOLS

The interpretation of the symbols used in the tables throughout this publication is as follows:

- ... figures not appropriate or not applicable.
- nil or zero.

EXPLANATORY NOTES

This report is one in a series of about 140 publications which present the results of the 1960 Census of Manufactures. Most reports in this series refer to specific industries, but there are summary reports for Canada and the provinces and for major industry groups. Adoption of the revised Standard Industrial Classification for 1960 compilations has necessitated changes in titles of many reports in this annual series. The content of many industries has also been affected (see following note on Industrial Classification).

Industry statistics given in these reports refer to number of establishments, employees, salaries and wages, cost of materials, supplies, fuel and electricity, gross value of shipments, inventories and value added by manufacturing. Details of materials used and products shipped are also given. Descriptions of the principal industry statistics, with special reference to 1960 are as follows:

Period Covered

Firms are asked to submit figures for the calendar year, if at all possible, and most reports are on this basis. Financial year reports for periods differing from the calendar year are accepted in instances where the firms find it impossible to supply calendar year data from accounting records. However the data on employees, salaries and wages are requested on a calendar year basis in all cases.

Establishment

Data for the annual census is collected on an establishment basis. A firm with more than one plant is required to file a report for each plant. In most cases an establishment is a complete factory; sometimes, however, a plant is divided into two or more establishments when it carries out operations classifiable to different industries and when separate accounting records are available. Usually the statistics for an establishment relate only to the manufacturing activities. Other activities such as construction at the plant by its own employees, wholesale or retail activities carried on at the plant location, etc., are not included. Plants engaged solely in repair work (except in the case of furniture, shipbuilding, boat building, aircraft and railway rolling stock industries) are not included but plants occupied in assembling parts into complete units are included.

Employees

Administrative and office employees include all executives and supervisory officials such as presidents, vice-presidents, secretaries, treasurers, etc., together with managers, professional and technical employees, superintendents and factory supervisors above the working foremen level, and clerical employees. Working owners and partners are also included in this category.

Production and related workers include all other factory workmen whether paid on a monthly, weekly, hourly or piece-work basis. Working foremen doing work similar to that of the employees they supervise are included, as are maintenance, ware-

housing and delivery staffs. Employees on new construction work, in retail or wholesale operations, on outside piece work etc. are not included.

Production workers are reported by months, an average for the year being obtained by summing the monthly figures and dividing by twelve. This procedure is followed even though the plant did not operate in all months. Figures on employment refer to calendar years whether or not some establishments reported other data on a financial year basis.

Salaries and Wages

Salaries and wages refer to gross earnings of the employees described above, including salaries, wages, commissions, bonuses, the value of room and board where provided, deductions for income tax and social services such as sickness and unemployment insurance, pensions, etc., as well as any other allowances forming part of the employees' wages. Payments for overtime are included.

Salaries refer to amounts paid to administrative and office employees. Withdrawals by working owners or partners for normal living expenses for self and family are included but not their withdrawals for income tax. Wages refer to the amounts paid to production and related workers as defined above. Data on earnings refer to the calendar year whether or not some establishments reported other data on a financial year basis.

Cost of Fuel and Electricity

Figures for fuel refer to amounts actually used, (including fuel used in cars and trucks), not to purchases unless the quantities are the same. Values refer to the laid-down cost at the works, including freight, duty, etc.

Materials and Supplies Used

Figures represent quantities and laid-down cost values, at the works, of materials and supplies actually used during the year whether purchased from others or received as transfers from other plants of the reporting company. Amounts paid to other manufacturers for work done on materials owned by the reporting company are included. Returnable containers or any other items charged to capital account are not included. Fuels are not included. Goods bought from others or received as transfers from other plants or reporting companies for resale without further processing are not included. Maintenance and repair supplies not chargeable to capital account are included.

Factory Shipments

Factory shipments refer to shipments of goods made from own materials either in the reporting plant or by other manufacturers on the basis of a charge to the reporting plant for work done. All products and by-products shipped from the establishment are included whether for domestic use, export, or for government departments. Transfer shipments to sales outlets, distributing warehouses or to other manufacturing units of the reporting firm are included. Goods bought or received as transfers

and resold without further processing are not included. Values are computed on f.o.b. plant or plant warehouse basis, and do not include sales tax or excise duties. Values of containers not returnable are included. Amounts received in payment for work done on materials owned by others are included.

In a few industries such as shipbuilding, aircraft, etc., where work on principal products extend over a relatively long period, the value of production is recorded rather than the value of shipments. For those industries production is computed from the value of deliveries of complete units during the year plus the value of work done during the year on unfinished units less the value of work done in previous years on finished units delivered in the year under review.

Inventories

Values represent the book values of manufacturing inventories owned and held at the reporting plant. Figures include inventories held in warehouses or selling outlets which have been included with plant operations for purposes of reporting shipments.

Value added by Manufacturing

Figures are computed from value of shipments plus or minus changes in inventories of finished goods and goods in process less cost of materials, fuel and electricity. This figure is sometimes referred to as net production.¹

Standard Industrial Classification

The revised Standard Industrial Classification which has been introduced with the 1960 Census of Manufactures provides for a breakdown of the universe into 140 industries arranged in 20 major groups compared with 135 industries in 17 major groups in the old classification which was used in the compilations for the years 1949 to 1959 inclusive. It incorporates changes considered desirable on the basis of experience in using the earlier classification as well as those which take account of changes in the structure of Canadian industries associated with the rapid developments of the past decade. Full details are contained in the Standard Industrial Classification Manual, Catalogue No. 12-501, which is available from either the Queen's Printer or the Dominion Bureau of Statistics. Reporting establishments are classified or allotted to specific industries on the basis of the value of principal products made or shipped.

Many industries remain unchanged in the new classification but in many instances there have been substantial changes in content because of the shifting of establishments from one industry to another or in re-grouping of establishments. Where

¹ To arrive at the National Accounts concept of "gross domestic product at factor cost", it would be necessary to subtract also the cost of office supplies used, advertising, insurance and other goods and services obtained from other businesses. Data on these inputs are not collected on the annual Census of Manufactures. Value added figures for "The primary industries and construction" are published in D.B.S. publication 61-202, *Survey of Production*.

changes have occurred the principal statistics for 1957, 1958 and 1959 have been re-compiled to provide data on a basis comparable with those for 1960.

Short Forms

Between 1949 and 1957, in an effort to ease the reporting burden for smaller firms, a short form was used asking for the total value of shipments only or, in a few cases where losses of detail were significant, for quantities and values of principal products. For purposes of publication, missing data were estimated on the basis of appropriate ratios. In general the cut-off point for these short forms was set at \$50,000 value of shipments. About 40% of the total number of establishments reported on the short form and accounted for less than 3 per cent of the total value of shipments.

In 1958, in order to establish a new base year, the small firms were asked to report all items of principal statistics together with some detail on materials and products.

For the 1959 Census, the short form was used again, but further steps were taken to ease the respondents' burden. First, the general limit for short forms was raised to \$100,000 value of shipments. In addition, a new intermediate form was developed. This form is a shortened version of the long form in that most of the general questions were pared down and the detailed lists of materials and products were limited to the more important items. The general limits for firms in this category were set at between \$100,000-\$500,000 value of shipments, but in the case of both the short and intermediate forms there were lower cut-offs for a number of industries in which the smaller firms accounted for a larger share of total shipments. On the other hand, limits were raised where this could be done without a significant loss of coverage. On most of the short forms for 1959, in addition to total value of shipments, data on principal products were requested. In a few industries, where loss of employment and earnings data were considered too large because of higher cut-offs, a question on total payroll was placed on the short form. This practice was followed again in 1960.

The intermediate and long forms provide complete data for the compilation of all elements of principal industry statistics and the details of materials and products. The one-page short form, although containing data on principal products and total value of shipments, does not request information on other elements of principal statistics such as value of inventories, materials, fuel and electricity and, in most cases, employment and salaries and wages, nor does it contain detailed data on volume and value of materials used. For purposes of compiling aggregates of principal statistics by industry and by geographic location, the missing data for each establishment were estimated for 1959 by using, in general, ratios based on the change in the value of shipments between 1958 and 1959. The proportion of the estimated data was generally less than 5 per cent of the total in each category of principal statistics.

COMMUNICATIONS EQUIPMENT MANUFACTURERS

1960

Data for 1960 presented in this report reflect implementation of the revised Standard Industrial Classification (S.I.C.) which is being used by the Dominion Bureau of Statistics in its compilation of 1960 industry statistics—see item “Standard Industrial Classification” in the Explanatory Notes section of this report. The present report constitutes the first in this series for Communications Equipment Manufacturers. For statistical purposes the industry titled Communications Equipment Manufacturers in the revised Standard Industrial Classification covers the operations of establishments primarily engaged in manufacturing radio and television transmitters, radar equipment, closed circuit television equipment, and electronic navigational aids; public address apparatus, and the related parts and equipment. Included are establishments primarily engaged in manufacturing telephone and telegraph equipment and parts. This industry includes establishments primarily engaged in manufacturing electronic control panels and similar devices.

In many instances adoption of the new Standard Industrial Classification effected a radical shifting of manufacturing establishments as between industry groupings and the establishment of new industries as in the case of Communications Equipment Manufacturers. This new industry is now comprised of those establishments previously forming a major component of the old S.I.C. industry group “Telecommunications Equipment” and those establishments manufacturing telephone equipment previously included in the old S.I.C. Industry, “Miscellaneous Electrical Products”. In order to provide a statistical comparison an attempt has been made to re-compile 1957, 1958 and 1959 data on the revised Standard Industrial Classification basis. Figures on this basis are shown in Table 1.

There were 132 establishments classified as Communications Equipment Manufacturers in 1960, there being 26 in Quebec, 94 in Ontario, 1 in Nova Scotia, 2 in Alberta and 9 in British Columbia. Employees in this industry totalled 22,981; salaries and wages totalled \$102,265,349; materials used in the manufacturing processes cost \$81,346,425; and factory shipments were valued at \$235,446,645.

The establishments in this industry make Communications Equipment as their main products. On the other hand some companies which have been classified to other industrial classes make communications equipment as a secondary part of their business. Tables 1 to 4 and 7 to 11 of this report refer only to communications equipment manufacturers which includes those firms reporting these lines as their main products. Small quantities of these commodities were also made by companies which have been classified to other industrial groups. Tables 5 and 6 represent total factory shipments of communications equipment and capacitors from all industries.

Note: Figures for “Value added by manufacture” shown in Table 1, as stated in the Explanatory Notes section, are normally computed from value of shipments plus or minus changes in inventories of finished goods and goods in process less cost of materials, fuel and electricity. In the case of progress payments industries the “Goods in process” adjustment is not based on the values for this item as shown in Table 2 which represents goods in process **owned** by reporting manufacturers only; but rather is based on goods in process **held** by manufacturers (i.e. goods in process inventory owned plus inventory held under progress payments arrangements). An inventory change of minus \$7,332,000 for these progress payments was added in 1960 to the goods in process figures in order to arrive at an actual value added figure.

TABLE 1. Principal Statistics: Communications Equipment Manufacturers, by Provinces, 1957 - 60

Basis: Standard Industrial Classification revised 1960.

Year and province	Estab- lish- ments	Em- ployees	Salaries and wages	Cost of fuel and electricity at plant	Cost at plant of materials used	Value added by manufacture ¹	Value of factory shipments
	number			dollars			
1957							
Quebec	26	12,479	50,591,149	554,361	28,487,980		97,028,239
Ontario	89	9,449	34,106,646	652,831	34,746,427		89,397,613
Other provinces	14	814	3,237,270	51,374	4,746,156	²	9,694,789
Canada	129	22,742	87,935,065	1,258,566	67,980,563		196,120,641
1958							
Quebec	23	11,131	49,326,045	541,597	22,608,995		85,946,770
Ontario	91	10,021	37,515,413	608,742	41,151,128		107,593,010
Other provinces	11	550	2,331,733	53,347	2,869,380	²	6,720,980
Canada	125	21,702	89,173,191	1,203,686	66,629,503		200,260,760
1959							
Quebec	27	11,336	52,905,600	630,263	27,087,421		88,382,786
Ontario	91	10,382	40,447,453	652,808	40,946,995		107,427,099
Other provinces	11	600	2,507,076	51,414	2,113,296	²	5,495,831
Canada	129	22,318	95,860,129	1,334,485	70,147,712		201,305,716
1960							
Quebec	26	12,214	57,924,520	740,867	31,586,360	84,664,770	112,605,500
Ontario	94	10,104	41,429,335	707,327	46,473,456	65,872,147	113,765,260
Other provinces	12	663	2,911,494	57,405	3,286,609	6,864,039	9,075,885
Canada	132	22,981	102,265,349	1,505,599	81,346,425	157,400,956	235,446,645

¹ See note to text.² The changeover to the new classification has delayed the recompilation of "Value added" figures for these years and same will not be available until the next issue of this report.**TABLE 2. Inventories:¹ Communications Equipment Manufacturers, 1960**

	Raw materials and supplies	Goods in process	Finished goods of own manufacture	Total
	dollars			
Opening:				
Quebec	3,973,416	21,457,325	5,421,455	30,852,196
Ontario	7,191,893	12,932,655	5,487,803	25,612,351
Other provinces	1,127,637	897,512	338,027	2,363,176
Canada	12,292,946	35,287,492	11,247,285	58,827,723
Closing:				
Quebec	3,603,338	28,126,560	6,195,717	37,925,615
Ontario	6,855,811	17,013,157	4,969,971	28,838,939
Other provinces	1,118,958	1,996,107	371,600	3,486,665
Canada	11,578,107	47,135,824	11,537,288	70,251,219

¹ Book value of all manufacturing inventories owned and held at plant and plant warehouses.

TABLE 3. Factory Shipments: Communications Equipment Manufacturers, 1960

Item	Quantity	Value of factory shipments
		\$
Domestic radio receiving sets and record players No.	3,552	132,618
Broadcast studio equipment (radio and television) including transmitters, antenna equipment, etc.	6,117,919
Radio communication equipment for civilian use	12,466,947
Radio communication equipment for defence	10,757,060
Radar equipment, commercial and defence	20,036,386
Sonar equipment, commercial and defence	2,176,418
➔ Navigational equipment, airborne and marine	1,823,271
Telephone materials, excluding intercommunications and inter-office	87,155,708
Multiplex equipment	1,311,937
Signal systems, traffic, fire alarm, etc.	2,867,157
Electronic tubes No.	12,430,062	18,979,292
Antennae and antenna parts and mounting, domestic type	2,569,325
Spare parts (less tubes) for maintenance of electronic telecommunication equipment and other electronic equipment, commercial and defence	2,654,468
Contract maintenance of electronic equipment, commercial and defence	2,930,023
Electronic sound equipment including amplifiers, loud speakers, public address systems, etc.	1,980,679
All other radio and electronic equipment	25,820,924
All other products	34,560,124
Amount received for repairs	186,273
Amount received in payment for work done on materials owned by others	920,116
Total value of shipments and work done	235,446,645 ✓

Note: Data given in this table cover only the output of firms which were engaged chiefly in making communications equipment other than radio and television receiving sets and record players and which have been classified in the new S.I.C. Industry Communications Equipment Manufacturers. Figures for the individual items shown do not necessarily represent the total output for Canada as in some cases there was also a production in other industries. Supplementary tables have been added to show factory shipments from all industries of specified items of communications equipment and capacitors — see Table 5 and Table 6.

TABLE 4. Materials Used: Communications Equipment Manufacturers, 1960

	Quantity	Cost at plant
		\$
Aluminum—Castings lb.	1,816,295	1,421,911
Wire rods "	186,290	108,248
Sheets and strip "	3,668,619	1,831,968
Other "	...	368,145
Brass and bronze—Castings lb.	25,255	19,150
Wire rods "	550,621	234,318
Sheets and strip "	1,090,162	573,544
Other "	...	213,384
Copper--Wire rods lb.	99,727	50,456
Sheets and strip "	60,822	40,225
Tubing and pipe "	68,095	55,136
Wire, enamelled "	873,986	825,954
Wire, other insulated "	...	1,928,123
Other "	...	143,652
Glass tubing and cane "	...	69,337
Insulating varnishes, japans, enamels and lacquers "	...	57,796
Iron and steel:		
Castings—Iron (gray and malleable) ton	4	2,029
Steel "	26	17,215
Steel bars and rods "	1,319	295,322
Steel sheets and strip—Plain "	4,235	961,699
Galvanized "	346	78,868
Steel wire "	94	12,346
Structural steel "	405	79,844
Other steel (except alloy) "	...	259,788
Alloy steel—all forms:		
Stainless "	...	154,587
Silicon sheets and strips ton	1,560	642,335
Other alloy "	...	45,616
Lead lb.	18,130	7,738
Mica, unfabricated forms only "	1,034	3,769
Motors, electric—Under 1 h.p. No.	843	28,663
1 h.p. and over, A.C. or D.C. "	647	216,278
Paints, stains, lacquers, for finishing only "	...	369,920
Resins, synthetic, all types "	...	665,071
Resistance wire ribbon and strip "	...	203,185
Tubes, electronic No.	542,896	700,634
Tungsten wire "	...	32,686
All other materials ¹ "	...	62,561,569
Containers and other packaging materials and supplies "	...	1,327,854
Operating supplies, maintenance supplies and repair supplies "	...	4,738,067
Total cost of materials "	...	81,346,425

¹ No detailed information on materials used was collected from firms generally reporting value of shipments of less than \$300,000. The total value of materials used by these firms in 1960 was \$3,199,720 and this amount is included in "all other materials".

TABLE 5. Specified Communications Equipment,¹ 1960 (from All Industries)

Products	Quantity shipped	Value of factory shipments
		\$
Broadcast studio equipment (radio and television) including transmitters, antenna equipment, etc.	—	6,117,919
Radio communication equipment for civilian use:		
Aviation	—	1,278,863
→ Marine	—	494,615
Land mobile	—	1,397,773
Point to point	—	10,496,696
Radio communication equipment for defence:		
Aviation	—	5,670,184
→ Marine	—	471,125
Land mobile	—	441,805
Point to point	—	5,553,946
Radar equipment—commercial and defence	—	20,186,386
Airborne navigational equipment	—	4,515,247
Telephone materials, including central and private branch exchange switchboard, telephones, transmitters, receivers, parts and supplies, excluding intercommunication telephones and inter-office communication sets	—	87,163,886
Inter-office communication sets, electronic type	2,306	713,879
Carrier current equipment	—	10,880,244
Multiplex equipment	—	1,311,937
Traffic signal systems	—	565,030
Fire alarm signal systems	—	1,175,612
Interior signal and clock systems, excluding telephones and inter-office communication sets	—	1,746,710
Electronic tubes:		
Electronic receiving tubes—Entertainment type	13,848,780	9,700,982
Other (including power, industrial and military)	404,814	3,010,565
Television picture tubes (including rebuilt tubes)	642,437	12,076,539
Miscellaneous electronic equipment:		
Antennae and antenna parts and mountings, domestic type	—	2,569,325
Resistors, electronic (excluding power service)	—	2,350,269
Electronic control (relays, photo-electric timing, capacitance, etc. and electronic control panels for industrial application)	—	391,663
Radio frequency heating equipment	—	170,249
Spare parts (less tubes) for maintenance of electronic telecommunication equipment and other electronic equipment—commercial and defence	—	3,179,468
Contract maintenance of electronic telecommunication equipment and other electronic equipment—commercial and defence	—	3,535,899
Electronic sound equipment—including amplifiers, loud speakers, public address systems etc.	—	1,991,911
All other radio and electronic equipment (not specified elsewhere) ²	—	23,838,569
Total	—	222,997,296

¹ For record players, radio and television receiving sets see Catalogue No. 43-205.² (a) Including semi-conductors, crystals, closed circuit industrial television, sonar equipment etc. where less than three firms reported shipments.

(b) Does not include capacitors—see Table 6.

(c) Transformers for radio, T.V. and other electronic applications not included—see Catalogue No. 43-207.

TABLE 6. Factory Shipments of Capacitors, 1960 (from All Industries)

Item	Value of factory shipments
	\$
Radio and T.V. capacitors, including radio condensers	3,207,674
Capacitors for electronic application (other than radio and T.V.)	2,689,372
Fluorescent ballast capacitors	
Miscellaneous capacitors	
Total	5,897,046

**TABLE 7. Principal Statistics classified according to Type of Ownership:
Communications Equipment Manufacturers, 1957 and 1960**

Type	Estab- lish- ments	Em- ployees	Salaries and wages	Cost at plant of fuel and electricity used	Cost at plant of materials used	Selling value of factory shipments
	number		dollars			
1957						
Individual ownership	9	50	117,348	2,957	160,451	310,736
Partnerships	3	54	148,775	6,470	305,967	565,048
Incorporated companies	117	22,068	85,015,040	1,232,132	65,752,341	189,621,984
Totals	129	22,172	85,281,163	1,241,559	66,218,759	190,497,768
1960						
Individual ownership	7	33	84,883	3,648	183,482	304,299
Partnerships	3	73	204,062	24,073	407,515	1,064,219
Incorporated companies	121	22,195	98,277,352	1,430,607	77,553,724	225,111,904
Totals	131	22,301	98,566,297	1,458,328	78,144,721	226,480,422

**TABLE 8. Principal Statistics grouped according to Selling Value of Factory Shipments:
Communications Equipment Manufacturers, 1957 and 1960**

Establishments reporting factory shipments of	Estab- lish- ments	Em- ployees	Salaries and wages	Cost at plant of fuel and electricity used	Cost at plant of materials used	Selling value of factory shipments
	number		dollars			
1957						
Under \$10,000	4	5	5,830	110	4,160	13,062
\$ 10,000 to \$ 24,999	11	30	97,071	1,673	66,472	177,339
25,000 " 49,999	12	78	236,322	14,429	189,769	458,843
50,000 " 99,999	15	131	452,508	13,422	432,785	1,015,456
100,000 " 199,999	18	331	965,010	33,319	880,379	2,446,178
200,000 " 499,999	31	1,218	3,518,578	96,717	4,657,859	10,174,147
500,000 " 999,999	16	1,340	4,151,175	79,917	4,362,124	10,881,540
1,000,000 " 4,999,999	14	3,455	12,407,954	238,253	12,182,192	28,543,633
5,000,000 and over	8	15,525	63,099,649	763,719	43,443,019	136,787,570
Head office	—	59	347,066	—	—	—
Totals	129	22,172	85,281,163	1,241,559	66,218,759	190,497,768
1960						
Under \$10,000	3	7	5,573	450	8,200	16,489
\$ 10,000 to \$ 24,999	10	34	93,618	1,356	111,017	178,042
25,000 " 49,999	6	36	120,592	6,964	85,381	258,665
50,000 " 99,999	14	147	469,912	25,561	414,513	976,099
100,000 " 199,999	15	280	916,649	62,208	682,074	1,976,131
200,000 " 499,999	33	1,145	3,895,346	146,667	4,088,530	10,693,639
500,000 " 999,999	21	1,586	5,710,999	140,326	6,193,065	15,583,121
1,000,000 " 4,999,999	19	3,132	11,923,394	246,600	13,475,802	34,002,427
5,000,000 and over	10	15,934	75,430,214	828,196	53,086,139	162,795,809
Totals	131	22,301	98,566,297	1,458,328	78,144,721	226,480,422

TABLE 9. Employees and Their Earnings: Communications Equipment Manufacturers, 1959 and 1960

Province	Employees					Earnings		
	Supervisory and office		Production workers		Total	Supervisory and office	Production workers	Total
	Male	Female	Male	Female				
	number					dollars		
1959								
Quebec	3,207	1,069	4,418	2,642	11,336	23,704,250	29,201,350	52,905,600
Ontario	2,475	805	3,030	4,072	10,382	17,670,038	22,777,415	40,447,453
Other provinces	245	68	172	115	600	1,505,499	1,001,577	2,507,076
Canada	5,927	1,942	7,620	6,829	22,318	42,879,787	52,980,342	95,860,129
1960								
Quebec	3,382	1,077	4,776	2,979	12,214	25,449,427	32,475,093	57,924,520
Ontario	2,501	865	3,111	3,627	10,104	18,871,733	22,557,602	41,429,335
Other provinces	255	82	184	142	663	1,397,644	1,513,850	2,911,494
Canada	6,138	2,024	8,071	6,748	22,981	45,718,804	56,546,545	102,265,349

TABLE 10. Production Workers, by Months: Communications Equipment Manufacturers, 1960

Month	Establishments reporting monthly detail ¹	
	Male	Female
January	7,644	6,441
February	7,618	6,493
March	7,797	6,535
April	7,787	6,549
May	7,843	6,541
June	7,995	6,562
July	7,860	6,329
August	7,662	6,394
September	7,539	6,383
October	7,456	6,300
November	7,414	6,241
December	7,440	6,131
Average for establishments reporting monthly detail	7,674	6,413
Average estimated for small establishments ²	397	335
Average for all establishments	8,071	6,746

¹ The number of production workers, by months, was collected only for larger establishments.² Small establishments were not asked to report details of employment.

TABLE 11. Fuel and Electricity Used: Communications Equipment Manufacturers, 1960

Kind		Quantity	Cost at plant
			\$
1. Establishments reporting commodity detail: ¹			
Bituminous coal—Imported	ton	5,977	75,485
Sub-bituminous coal (from Alberta mines)	"	69	1,138
Anthracite coal	"	394	8,516
Gasoline (including gasoline used in cars and trucks)	Imp. gal.	205,275	56,740
Fuel oil including kerosene and coal oil	"	3,496,395	336,773
Gas—Liquefied petroleum gases	"	11,846	2,526
Natural	M cu. ft.	74,934	70,277
Other fuel	12,629
Electricity purchased	kwh.	75,535,584	738,742
2. Estimate for establishments for which no data were collected: ²			
Cost of fuel and electricity	202,773
3. All establishments:			
Total cost of fuel and electricity	1,505,599

¹ Establishments generally reporting value of factory shipments of \$300,000 and over.² Establishments generally reporting value of factory shipments of less than \$300,000.

TABLE 12. Imports and Exports of Specified Communications Equipment, 1959 and 1960

	1959		1960	
	Quantity	Value	Quantity	Value
		\$		\$
Imports				
Radio apparatus, n.o.p.	32,778,359	...	36,468,201
Sound equipment, n.o.p.	3,743,978	...	4,497,329
Telegraph apparatus and parts	5,081,614	...	4,845,925
Telephone apparatus and parts	11,727,624	...	11,954,149
Tape recorders and parts	3,407,376	...	4,461,259
Exports				
Radio, wireless apparatus, n.o.p.	8,974,436	...	21,997,834
Telegraph and telephone apparatus	2,878,555	...	7,149,970

Directory of Firms: Communications Equipment Manufacturers 1960

Name of firm	Location of plant
Nova Scotia:	
E.M.L. — Cossor Electronics Ltd.	Dartmouth
Quebec:	
Alpha Electronic Products Co. Reg'd.	205 St-Zotique St. W., Montreal
Amplitrol Electronics Ltd.	7080 Hutchison St., Montreal
Audio Vox Intercom Inc.	4510 De Laroche, Montreal
Berry Ltd., C.M.	Dorval

Directory of Firms: Communications Equipment Manufacturers 1960 - Continued

Name of firm	Location of plant
Quebec - Concluded:	
Canadian Aviation Electronics Ltd.	Ville St. Laurent
Canadian Cameo Chime Co. Ltd.	10332 Lille St., Montreal
Central Dynamics Ltd.	147 Hymus Blvd., Pointe Claire
Chaput Limitée, Paul	2626 Bates Rd., Montreal
Constanta Company of Canada Limited, The.....	280 Regina Ave., Verdun
Electrolabs Reg'd.	7385 St. Lawrence Blvd., Montreal
General Precision Industries Ltd.	455 Craig St. W., Montreal
Haliburton & White Limited	8235 Mountain Sights Ave., Montreal
International Systcoms Ltd.	4940 Bourg St., St. Laurent
King's Electronics (Canada) Ltd.	2425 Grand Blvd., Montreal
Kirkland (Canada) Ltd., H.R.	4604 Coolbrook Ave., Montreal
Multi-Vox Ltd.	9967 St. Michel Blvd., Montreal
National Semiconductors Ltd.	230 Authier St., Montreal
Northern Electric Co. Ltd.	1261 Shearer St., Montreal
Pylon Electronic Development Co. Ltd.	161 Clement St., Ville Lasalle
Radio Engineering Products Ltd.	Granby
R.C.A. Victor Company Ltd.	1001 Lenoir St., Montreal
Standard Electric Time Co. of Canada Ltd., The	103 Gun St., Pointe Claire
Standard Telephones & Cables Mfg. Co. (Canada) Ltd.	9600 St. Lawrence Blvd., Montreal
Superior Electronics Inc.	7205 St. Urbain St., Montreal
Televox Systems Inc.	410 rue Lafayette, Québec
United - Carr Fastener Co. of Canada Ltd.	St. Remi
Ontario:	
Aerovox Canada Ltd.	1551 Barton St. E., Hamilton
Airtron Canada Ltd.	349 Carlaw Ave., Toronto
Allied Circuit Techniques Ltd.	29 Brock St. N., Oakville
Amphenol Canada Ltd.	349 Carlaw Ave., Toronto
Amplifone Canada Ltd.	40 Dussek St., Belleville
Andrew Antenna Corp. Ltd.	606 Beech St., Whitby
Antiference (Canada) Ltd.	169 Bartley Dr., Toronto
Arrow Radio Co.	1829 Davenport Rd., Toronto
Audio Transformer, Company Limited.....	202 Regina St., Waterloo
Automatic Coil Mfg. Ltd.	50 Wingold Ave., Toronto
Automatic Electric (Canada) Limited	100 Strowger Blvd., Brockville
Avionics Ltd.	Niagara on the Lake
Bayly Engineering Ltd.	Hunt St., Ajax
Beama Engineering Ltd.	361 King St. E., Toronto
Benco Television Associates Ltd.	27 Taber Rd., Rexdale
Canadian Arsenals Limited	Scarborough
Canadian Astatic Limited	2273 Danforth Ave., Toronto
Canadian Atlas Transformer Co. Ltd.	12 Duchess St., Toronto
Canadian General Electric Company Limited (Electronic Equipment)	830 Lansdowne Ave., Toronto
Canadian General Electric Company Limited (Tube Section)	189 Dufferin St., Toronto
Canadian Industrial Consultants Ltd.	60 Newcastle St., Toronto
Canadian Stackpole Ltd.	550 Evans Ave., Toronto
Canadian Westinghouse Company Limited (Electronic Devices)	286 Sanford Ave. N., Hamilton
Canadian Westinghouse Company Limited (Tube Division)	286 Sanford Ave. N., Hamilton
Cannon Electric Canada Limited	160 Bartley Dr., Toronto
Capacitors of Canada Ltd.	38 Upton Rd., Scarborough

Directory of Firms: Communications Equipment Manufacturers, 1960 — Continued

Name of Firm	Location of plant
Ontario — Continued:	
Centralab Canada Ltd.	McMaster Ave., Ajax
Cerl-Dale Limited	Curity Ave., Toronto
Colben Manufacturing Co. Ltd.	5 Thorpe St., Dundas
Collins Radio of Canada Limited	11 Bermondsey Rd., Toronto
Consolidated Electronic Equipment Co.	94 Sheppard Ave. West, Willowdale
Croven Limited	500 Beech St., Whitby
Crown Metal Products	Belmont
CTS of Canada Ltd.	80 Thomas St., Streetsville
Daly Capacitors Ltd.	140 Kendal Ave., Toronto
Darcy Limited, J.H.	51 Abbott St., Smith Falls
Delhi Metal Products Ltd.	23 Waverly St., Delhi
Delta Electronics	28 Eugene St., Toronto
Eclipse Electronics Co.	153 Logan Ave., Toronto
Edwards of Canada Limited	625 Sixth St. E., Owen Sound
Electronic Craftsmen Ltd.	30 Weber St. N. Waterloo
Electronic Materials International Ltd.	342 Gladstone Ave., Ottawa
Electronics Corporation of America (Canada) Limited	104 Advance Rd., Toronto
Erie Resistor of Canada Ltd.	7 Fraser Ave., Trenton
Essex Electronics of Canada Ltd.	99 Wragg St., Trenton
Ferritronics Limited	157 Willowdale Ave., Willowdale
General Instrument (F.W. Sickles of Canada Ltd.)	151 Weber St., Waterloo
Gomard Electronics Ltd.	180 Chatham St., Hamilton
Gordon Ruth and Co.	354 Princess Ave., London
Hammond Manufacturing Co. Ltd.	Speedvale Ave. & Edinburgh Rd., Guelph
International Resistance Company Limited	349 Carlaw Ave., Toronto
Kelk and Co., G.F.	130 Willowdale, Willowdale
Lindsay Antenna & Specialty Products	50 Mary St. W., Lindsay
Litton Systems (Canada) Limited	123 Rexdale Blvd., Rexdale
Marsland & Company, Eric	100 Ahrens St. W., Kitchener
Marsland Engineering Ltd.	154 Victoria S., Kitchener
McCurdy Radio Industries Limited	22 Front St., Toronto
Measurement Engineering Limited	232 John St., Arnprior
Mellon Electric Ltd.	370 Olivewood Rd., Toronto
Methode Manufacturing Canada Ltd.	Hanover
Morina Electronics Engineering Co.	52 Advance Rd., Toronto
Northern Electric Company Limited	Belleville
Northern Radio Manufacturing	1950 Bank St., Ottawa
Potter & Brumfield Canada Ltd.	135 Oxford St., Guelph
Precision Electronic Components (1956) Ltd.	50 Wingold Ave., Toronto
Quality Hermetics Ltd.	45 Hollinger Rd., Toronto
Radio Components Ltd.	50 Wingold Ave., Toronto
Radio Condenser Company Limited	6 Bermondsey Rd., Toronto
Radio Speakers (Canada) Ltd.	37 Hanna Ave., Toronto
Raytheon (Canada) Ltd.	61 Laurel St., Waterloo
R.C.A. Victor Company Ltd.	Prince St., Renfrew
Rotronic Corporation Ltd.	12 Duchess St., Toronto
Sinclair Radio Laboratories Ltd.	21 Toro Rd., Downsview
Smallwood Limited, S.G.	391 King St. E., Kitchener
Snelgrove Co. Limited, C.R.	141 Bond Ave., Don Mills
Soundmaster Limited	283½ Bank St., Ottawa

Directory of Firms: Communications Equipment Manufacturers, 1960 — Concluded

Name of Firm	Location of plant
Ontario — Concluded:	
Standard Television Products Limited	108 Sydney St. S., Kitchener
Stanwyck Coil Products Ltd.	17 Laurier St., Hawkesbury
Stark & Co. Ltd., H.G.	126 Willowdale St., Willowdale
Stark Electronic Instruments Ltd.	Ajax
Telegraph Condenser Company (Canada) Ltd.	50 Bertal Rd., Toronto
Telequipment Mfg. Co. Ltd.	729 Dundas St., London
Tenatronics Ltd.	Davis Drive E., Newmarket
Titania Electric Corporation of Canada Ltd.	Gananoque
T.M.C. Canada Ltd.	R.R. 5, Ottawa
Topping Electronics Limited, F.V.	94 Laird Dr., Toronto
Tri-View Electronics Ltd.	10 Leswyn, Toronto
Turret Electronics Ltd.	31 Hayes Ave., Guelph
Valeriot Electronics (Guelph) Ltd.	Guelph
Vanal Mfg. Co. Ltd.	1484 Lakeshore Road, Toronto
Varian Associates of Canada	45 River Drive, Georgetown
Watkins Electronics Ltd.	2811 Dufferin St., Toronto
Welwyn Canada Ltd.	1255 Brydges St., London
Winco Electronics Co. Ltd.	362 Chilver Rd., Windsor
Alberta:	
Automatic Electric (Canada) Limited	Lethbridge
Electronic Research & Development Co. Ltd.	322 - 10th St. N.W., Calgary
British Columbia:	
Barvic Engineering Ltd.	909 Beach Ave., Vancouver
Ekolite Limited	525 East Hastings St., Vancouver
Humble Manufacturing Co. Ltd.	1695 W. 2nd Ave., Vancouver
Lemkurt Electric Co. of Canada Ltd.	7018 Lougheed Hwy., North Burnaby
McCarter Radio & Television Ltd.	1625 W. 3rd Ave., Vancouver
Sims Laboratories	9813-3rd St., Sidney
Spillsbury & Tindall Ltd.	120 E. Cordova St., Vancouver
Vision Manufacturing Ltd.	1430 River Road, Richmond
West Coast Radio Telephone Manufacturers	1366 W. Pender St., Vancouver

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