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# Corporate profile

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Spar Aerospace Limited is a Canadian, shareholder-owned company with products and services in the space, communications, defence, teleoperator and aviation markets. The company employs over 2,170 people, including about 600 engineers and technicians—one of the largest technological groups in the private sector in Canada.

In 17 years Spar has gained international recognition as a diversified technology company. More than 68% of Spar's sales are in international markets and about 18% are with the Canadian Government.

*Cover:*

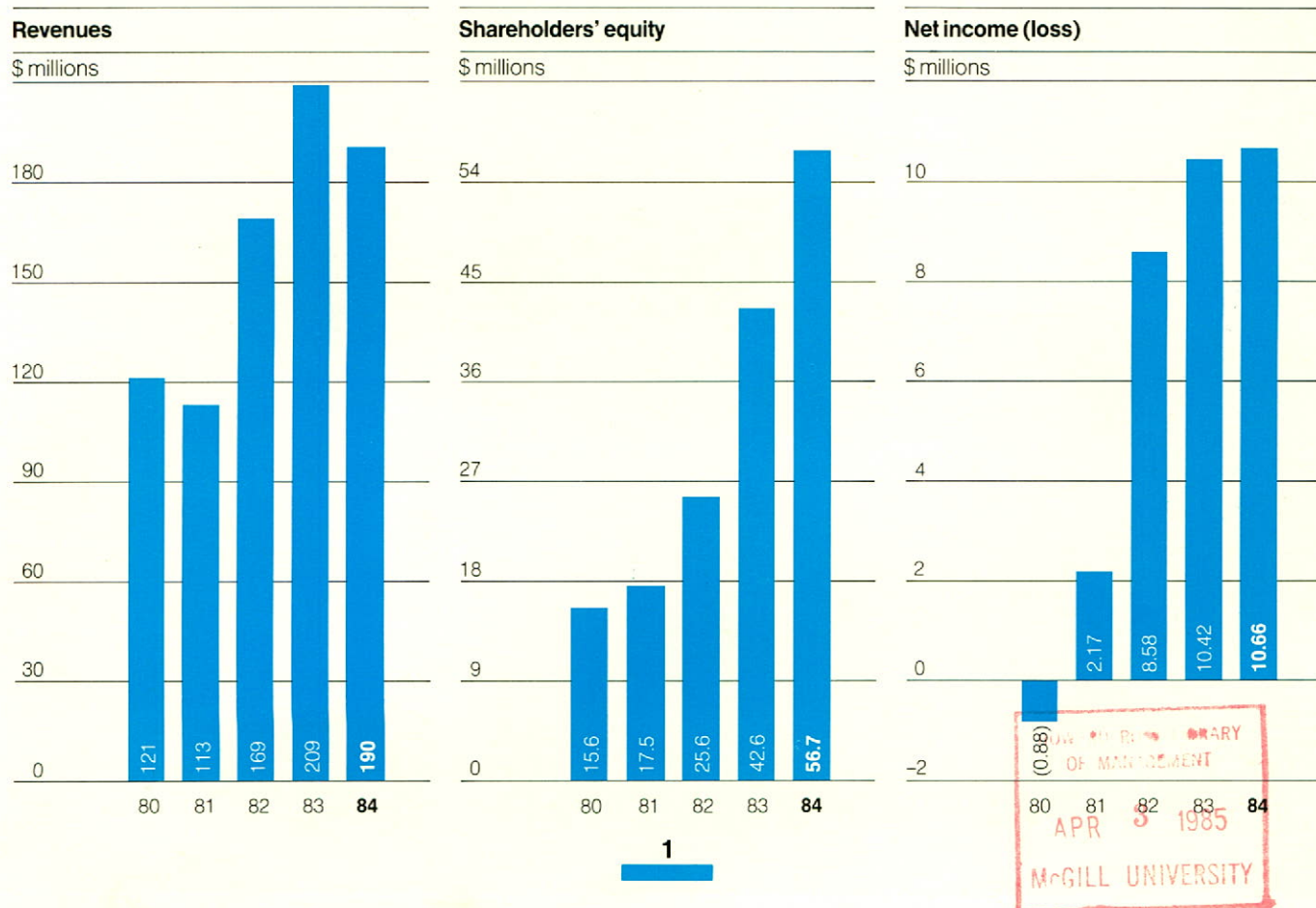
*After launching two satellites—including the Spar-built Anik D—astronauts aboard shuttle mission 51-A use their ingenuity and the Canadarm to retrieve two wayward satellites launched earlier in the year.*

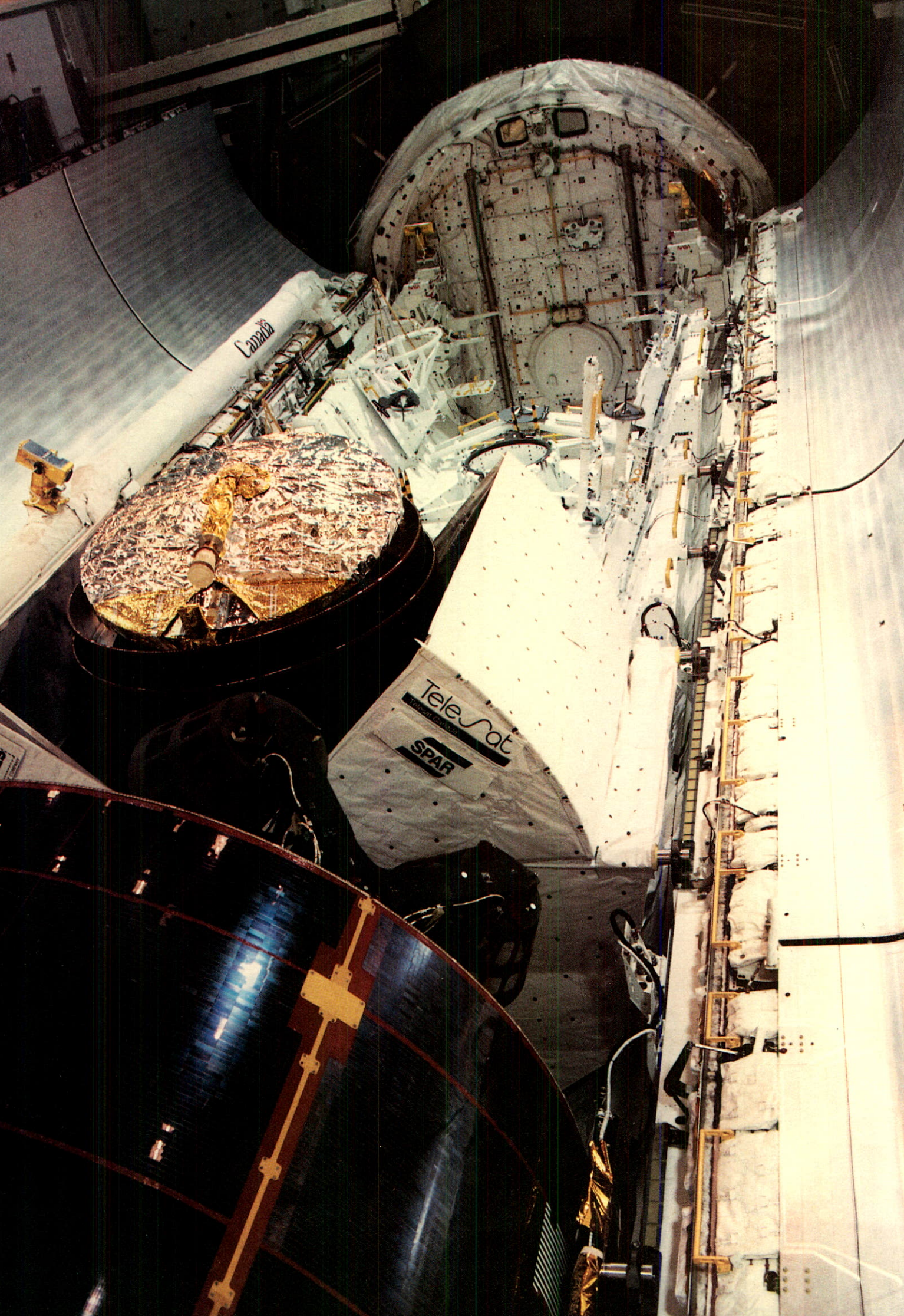
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*Vous pouvez vous procurer cette brochure en français.*

# Financial highlights

	1984	1983	% change
<b>(\$000s)</b>			
Revenues—continuing operations	<b>\$190,031</b>	\$209,321	-9
Income from continuing operations	<b>15,916</b>	12,709	+ 25
Income before extraordinary item	<b>14,597</b>	10,423	+ 40
Net income for the year	<b>10,661</b>	10,423	+ 2
Working capital from operations	<b>18,273</b>	16,436	+ 11
Working capital	<b>54,662</b>	54,835	
Long term debt	<b>6,776</b>	5,634	+ 20
Convertible subordinated debentures	<b>22,825</b>	22,900	
Cash dividends on subordinate voting shares	<b>3,430</b>	2,262	+ 52
Shareholders' equity	<b>56,715</b>	42,567	+ 33
<b>(in dollars)</b>			
Basic earnings (loss) per subordinate voting share			
Continuing operations	<b>\$1.88</b>	\$1.73	+ 9
Discontinued operations	<b>(.15)</b>	(.31)	
Extraordinary item	<b>(.47)</b>		
Net income for the year	<b>\$1.26</b>	\$1.42	-11
Fully diluted earnings (loss) per subordinate voting share			
Continuing operations	<b>\$1.65</b>	\$1.43	+ 15
Discontinued operations	<b>(.13)</b>	(.23)	
Extraordinary item	<b>(.37)</b>		
Net income for the year	<b>\$1.15</b>	\$1.20	-4
Shareholders' equity per subordinate voting share outstanding at year end	<b>\$6.45</b>	\$5.33	+ 21





# Chairman's report

In 1984 Spar Aerospace Limited concentrated on the upgrading of its internal resources in anticipation of renewed sales growth during the second half of the decade. At the same time earnings from continuing operations exceeded those earned in 1983.

## Results

For the year ended December 31, 1984 total revenues were \$190 million compared to \$209 million in 1983. The Spar content of revenues was higher than in 1983, while revenues attributable to subcontractors—particularly on the *Brasilsat* project, were down substantially from the previous year. Income from continuing operations was \$15.9 million in 1984, a 25% increase over 1983. An operating loss of \$1.3 million was recorded by Northway-Gestalt Corporation in 1984 and an extraordinary loss of \$3.9 million resulted from the discontinuance of this subsidiary's mapping services.

The Gears and transmissions, aviation and other services business segment had a 77% increase in operating profit on a 28% increase in revenue. Productivity improvement on long term contracts and increased market penetration contributed largely to the increase in earnings in this segment.

Operating profit in the Satellites, communications and advanced systems business segment was 7% higher than in 1983 and reflected the award of the AN/SAR-8 infrared surveillance system as well as continuing strong performance in space programs.



The company spent \$25 million on research and development in 1984, including expenditures on behalf of and funded by customers. This amount represents 13% of revenues.

Spar's financial position is sound. At year end, working capital was \$54.7 million, total debt was \$31.4 million and shareholders' equity was \$56.7 million (\$6.45 per share).

## Corporate affairs

On May 9, 1984, Mr. R. Don Pollock was appointed President and Chief Operating Officer and elected to the Board of Directors. Mr. Pollock has made a major contribution to the success of Spar and his appointment reflects the strengthening of the senior management team.

*Evelyn Raspberry, Sid Ellis, Dave Thomas and Robert Meredith review progress in the Gears and Transmissions Division's productivity program.*

*The Anik D loaded in the shuttle cargo bay prior to launch.*



In October, 1984, Spar's United States subsidiary acquired Commercial Telecommunications Corporation (Comtel) of Santa Maria, California, a pioneer in the development of small and medium Time Division Multiple Access (TDMA) systems. This acquisition significantly broadens Spar's TDMA product line and takes the company into rapidly expanding commercial markets for satellite communications in the United States.

The founder of Comtel, George Dill, brings additional depth to Spar's satellite communications capability.

In October, 1984, the company purchased the land and buildings it had been leasing from RCA Inc. in Ste-Anne-de-Bellevue, Quebec.

On December 3, 1984, The Toronto Stock Exchange listed Spar options for trading, giving investors a wider selection of Spar securities from which to choose. This should add to the liquidity of the market for the company's shares.

Due to continuing losses resulting from weak demand and because of incompatibility with current corporate strategy, the conventional and digital mapping assets of Spar's wholly-owned subsidiary, Northway-Gestalt Corporation, were sold, effective December 31, 1984. Spar retains rights to the Gestalt Photo Mapper, which it will continue to market. Late in the year The Copter Shop in Calgary was closed and its activities were merged with the Aviation Services Division in Toronto.



*Frank Mee was the 1984 winner of the Canadian Astronautics and Space Institute prestigious Romeo Vachon Award.*

Subsequent to year end, the company introduced its third employee share purchase plan. Under this 1985 plan 1,162 employees purchased 186,234 subordinate voting shares providing nearly \$4.7 million in new equity capital.

On February 28, 1985, the share purchase warrants expired. Each warrant entitled the holder to purchase two subordinate voting shares. Since January 1, 1985, the exercise of warrants has resulted in 334,064 subordinate voting shares being issued and \$2.3 million in new equity capital being raised.

The technological revolution of the past fifteen years has created opportunities for rapid growth for businesses that can adapt to change. Over this period the thrust of advanced technology has increasingly moved to an electronic, digital world. Spar has successfully met this challenge by developing its management capability, people skills and financial resources. The company today is well-positioned to compete in international markets for advanced technology products and services.

Concurrently, management has pursued a deliberate business strategy of securing niches in selected markets in which it has a competitive advantage and which offer superior long-term profit potential. In recent years the increasing recognition by the marketplace of the value of Spar's specialized services has significantly improved its financial results, particularly profit margins and return on investment. The drive to boost profits is at the core of all Spar's business planning. These profits will permit reinvestment in new technology, market and product development that will maintain Spar's competitive advantages.



*Bruce Gallow and Jim Butler confer on marketing strategy.*



*Peter Garland and John Barkwith examine a printed circuit board of Spar's Time Division Multiple Access equipment.*

The growth prospects for Spar's satellite and ground station operations are encouraging. Deregulation of traditional communications services within Canada and the U.S.A., supplemented by new services such as mobile satellites, direct broadcast satellites and private commercial satellite networks, will add to the demand for satellites. New techniques for signal processing in satellite ground stations, such as TDMA, which significantly improve operating economies in the transmission of data, will add to the demand for satellite services. Satellite communications unquestionably provide the fastest and least expensive means of bringing modern communications to the world's less developed nations, which will increasingly turn to these services over the next decade.

Spar is a world leader in the business of sophisticated remote manipulator systems for space and terrestrial applications. As a result of the achievements of the Canadarm, this form of specialized robotics has become essential to the commercial development of space. The Canadian Government, which has played a vital role in the development of Canada's space industry, is considering an invitation from the United States Government to join President Reagan's \$8 billion Space Station Project. Should a favorable reply be given, Spar expects to participate in this venture involving the commercial and scientific utilization of outer space.

Surveillance technology, on earth and in space, is emerging as an important new market for Spar. The award of the engineering development contract for the AN/SAR-8 infrared surveillance system underscores the company's leadership position in the application of electro-optical sensing systems to naval surveillance. In addition, Spar's contract to design and develop radar sensing technology for the new *Radarsat* satellite for the Department of Energy, Mines and Resources will enable the company to penetrate markets for commercial and scientific surveillance systems capable of detecting and monitoring natural resources, shipping movement, environmental data and other important economic information.



*Julius Gabriel and Pat Lombardo review a computer printout for system application software.*

### **Outlook**

Spar entered 1985 with a solid base of business in place and management expects the company to achieve increased sales and earnings this year.

I should like, on behalf of the Board, to thank all of our more than 2,000 employees for their dedicated support which contributed so much to Spar's success in 1984.

A handwritten signature in black ink, which appears to read "L. D. Clarke".

L. D. Clarke  
Chairman of the Board  
and Chief Executive Officer

March 1, 1985



# Operations

Significant progress was made during the year in strengthening and expanding the company's operating base in the fields of space, communications, aviation and defence.

## Market development

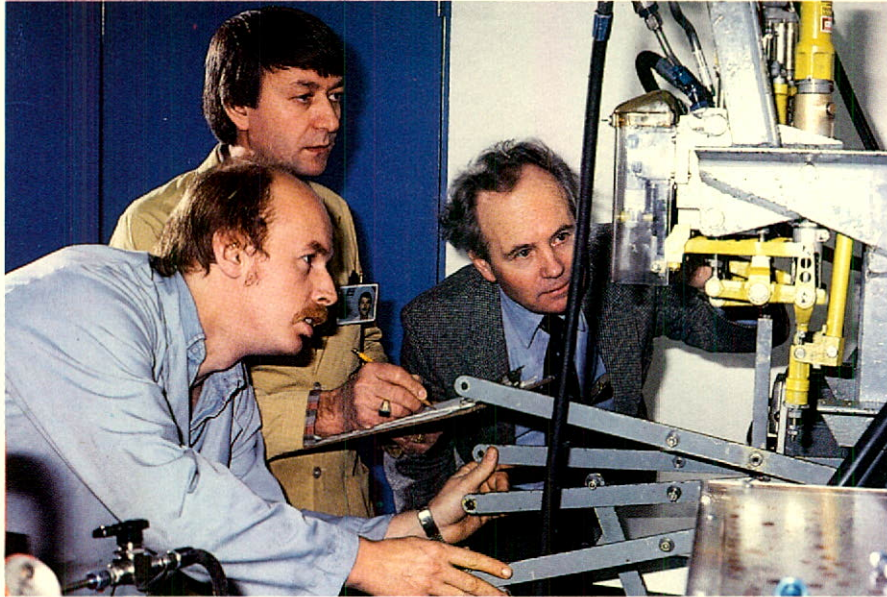
A major event was the signing of an \$86 million contract with the Canadian Commercial Corporation for the full scale engineering development of a passive infrared surveillance system for the United States and Canadian Navies. The award is the culmination of more than a decade of development and places Spar in the forefront of the application of infrared technology to military needs. This position was further reinforced by the agreements signed late in the year to transfer technology for MINI-FLIR (Forward Looking Infrared) development and production from the Electro Optics Systems Division of Honeywell Inc. (U.S.) to Spar's Defence Systems Division. This technology will enable the company to provide a Canadian source for the requirements of the Department of National Defence and will provide a base for exploiting international opportunities in designated export markets.



The Remote Manipulator Systems Division entered into a \$25.9 million contract with Ontario Hydro for the development of a remote manipulation and control system for refurbishing Candu reactors. This is the first major terrestrial application of the technology developed for the National Aeronautics and Space Administration's shuttle manipulator program. Other terrestrial applications for this technology are being pursued in North American markets. Particular attention is being paid to the application of advanced robotics to Canada's basic industries. Spar and Inco Limited are studying remote manipulation and control technology in terms of underground hard rock mining methods.

*Tom Tucker, Daryl Butt, George Crawford and Eric Ansell inspect the base of the remote manipulation and control system being built to refurbish the Candu reactor.*

*Alastair Jenkins and Howard Kerr of the Defence Systems Division review an infrared test pattern.*



*John Norris, Del Ricci and Henk Van Tiggelen calibrate an auxiliary servo for the Sea King Helicopter.*

Several contracts were negotiated with The People's Republic of China for earth stations as part of that country's domestic satellite (DOMSAT) system. The new stations will be located throughout China, including such remote areas as Tibet, Inner Mongolia and Northwest China. Further contracts are expected as the Chinese DOMSAT system undergoes expansion. Through the acquisition of Comtel the company placed itself in a position to offer the full range of Time Division Multiple Access (TDMA) equipment for satellite communications. In addition, Spar's Communications Systems Division will be in a position to use the Comtel customer base, which includes such organizations as Dow Jones, NASA and Western Union, to market its products in the United States.

The company's base in rotary wing aircraft overhaul was broadened through a contract covering the dynamic components of the Canadian Government's Sea King helicopters. The Aviation Services Division is providing a full range of services to operators of medium lift and heavy lift helicopters from a new facility in Toronto.



*John Hadden, Joseph Karpel and Jim Pullar review progress in the Black Hawk transmission manufacture.*

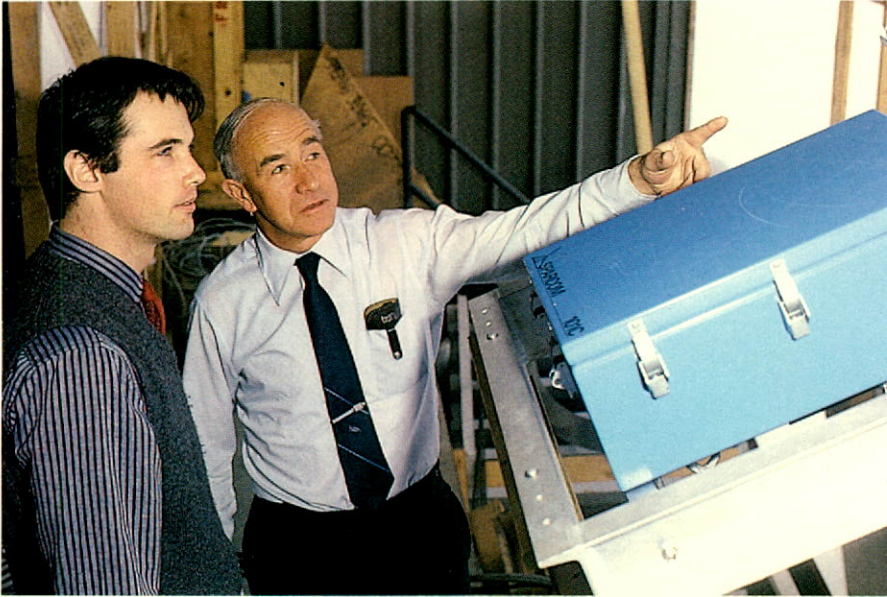
### **Technological development**

Late in the year, the ground support facility for the Brazilian communications satellite system was completed. This represents the first time that Spar, in conjunction with its subcontractors, SED Systems Inc. and Hughes Aircraft Company, has initiated such a development. In February, 1985, the first of two communications satellites was launched from Kourou, French Guiana. The second satellite is planned for launch in the third quarter of 1985.

Development, integration and testing of the solar array for the European Space Agency *Olympus* satellite

continued at the Remote Manipulator Systems Division. This is one of the largest solar arrays in the world and its development has significantly expanded the company's technical capability in the field of large deployable space structures—a technology which will be in increasing demand in major space programs such as the Space Station.

The first main transmission unit for the Sikorsky Black Hawk helicopter was shipped during the year and successfully completed qualification testing. Delivery of production units is now underway. Due to its size and complexity, this project has necessitated a major expansion in the physical and technical capability of the Gears and Transmissions Division over the past two years.



Aiden Stack and Al Lawson check out the Sparmarine stabilized antenna.

Michel Thivierge, Freleigh Osborne and Jai Bhagwan review plans for a satellite project.



Development of a new class of stabilized earth stations for semi-submersible offshore oil rigs was initiated in conjunction with Newfoundland Telephone & Telegraph and the Communications Research Centre. In 1985, the prototype unit will be field tested and should open up further domestic and international markets for the company's Sparmarine satellite terminals.

Application of the company's satellite technology to Peace Keeping in Space was evaluated under a contract with the Department of External Affairs. Work on refining this concept, known as Paxisat, will continue during 1985.

**Summary**

A high level of achievement was recorded in 1984 and key markets were opened up. The company continued to expand and refine its technological base and the organization was focussed, to a greater degree, on the space, communications, aviation and defence markets.

Very high levels of employee morale and commitment were evident in 1984. Numerous breakthroughs were achieved which should ensure the continued development of Spar in the years ahead.

A handwritten signature in black ink, reading "R. D. Pollock".

R. D. Pollock  
President and Chief Operating Officer

March 1, 1985

# A distant beacon

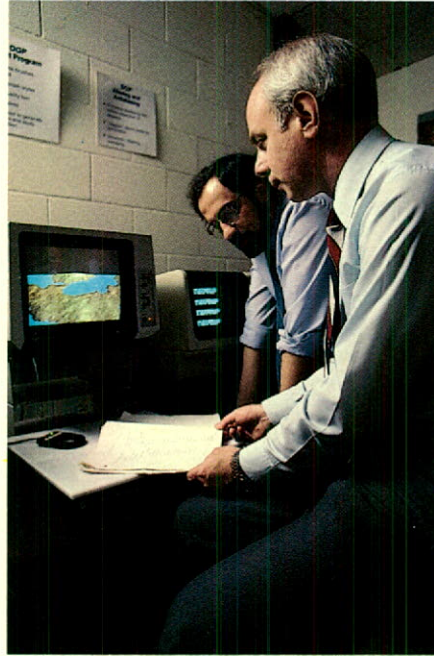
Research is the life blood of any advanced technology company. Or, as Francis Bacon once put it: "Seek ye first the good things of the mind, and the rest will either be supplied or its loss will not be felt."

In a rapidly changing world it is axiomatic that there can be no development of new products and services without research. In the field of robotics and artificial intelligence, Canadian industry must support basic research if it is to excel in this vital arena.

The university community offers the best hope for such research, which is one reason why Spar has invested the largest single grant in its history in a university-based research effort. To turn Bacon's words on themselves, such research holds the greatest promise of new development, the loss of which would indeed be felt. It could threaten our leading role in what has often been called the second industrial revolution.

Supporting basic research is one measure of such leadership. Spar's major effort is an advanced research program in artificial intelligence, robotics and society undertaken in early 1984. An initial three-year grant of \$750,000 to the Canadian Institute for Advanced Research, will sponsor research at three Canadian universities. The program affords a unique example of industry-university interaction in an area of vital concern to Spar.

The Institute itself is an unusual undertaking without walls—an operation that marshalls the best and brightest in Canadian universities to focus on a particular area of inquiry with a view toward advancing the state of the art. Its first major project is the artificial intelligence program



*University of Toronto Professor John Mylopoulos and Spar's Graham Norgate review the progress of the artificial intelligence and robotics project.*

co-ordinated by Dr. William G. Tatton, a pioneer in research on Parkinson's Disease and director of the University of Toronto's Playfair Neuroscience Unit. He is joined by nodal leaders—each with a particular competence in a node or field of research—and seven other fellows at the Universities of Toronto and British Columbia and McGill University. The nodal leaders are Professor John Mylopoulos of the University of Toronto's Department of Computer Science; Professor Raymond Reiter of the University of British Columbia's Department of Computer Science, and Professor Steven W. Zucker, co-director of McGill University's Department of Electrical Engineering Computer Vision and Robotics Laboratory.

The aim of the Institute's program is to explore the development of machines that can sense, think and act, and to assess what the impact of these machines will be on society. Unlike applied research, which has as its objective a marketable product, the basic research of the Institute seeks answers to fundamental questions that may or may not lead to near-term results. In accordance with its charter, the fruits of the Institute's efforts will be in the public domain, shared by way of scientific papers and symposiums. The real advantage to Spar is that it has seconded four of its most experienced engineers to work with the Institute's researchers in exploring this fascinating field.

They are Graham Norgate, who will work directly with Dr. Tatton, and colleagues Joseph Yuan, who is the project leader in advanced robotic control; Harry Boxall, who is working on artificial intelligence, and Paul Jones, who is exploring machine vision. All have done extensive work at Spar's Remote Manipulator Systems Division and bring their experience, and perspective to bear on the activities of their colleagues in the university community. Chief among their experience is their critical work on the Canadarm, the highly successful remote manipulator system employed by NASA's space shuttle. The Institute project has enabled these engineers to rapidly achieve an initial level of understanding of new disciplines and to assist them in planning Spar's future activities.

The dimensions of the program are outlined by Mr. Norgate in this way:

*The subject of artificial intelligence is as old as the electronic digital computer. In the early 1950s, the famous theorist A. Turing predicted that computers, then very crude devices, would soon be able to play chess and learn in the same way that a child does. It is noteworthy that, although we now have computers that play chess very well, we do not think of them as 'intelligent'. Our exposure to computers has evidently caused our perception of 'intelligence' to change; perhaps we will never think of machines as intelligent, no matter how sophisticated they become. 'Artificial intelligence' is not a quantum leap that is about to happen, but an attribute of computer systems which already exist to some degree and which will continue to evolve for a long time to come.*

To date artificial intelligence has concentrated on specialized areas, including "natural language" communications between humans and computers, "expert systems" which can make decisions in certain areas, and "sensory processing" by computers, especially in the areas of vision and touch. The introduction of "smart robots" in the workplace can dramatically:

- increase productivity, thus making Canada's products more competitive in the international marketplace and helping to preserve its standard of living,
- reduce the incidence of injury and disease resulting from exposure to toxic substances and other health hazards in manufacturing, mining and forestry,
- free people from routine tasks, thus enabling them to apply their own intelligence more effectively.



*Joe Yuan, Harry Boxall and John Stovman observe a manipulator demonstration by Graham Norgate, who heads Spar's team on the artificial intelligence and robotics research project.*

The Institute project has already enabled Spar's engineers to rapidly achieve an initial level of understanding of these new disciplines and to assist them in planning future activities. Dr. Jones is working with Professor Zucker on machine vision in Montreal and will this next year apply his new knowledge in applications-oriented demonstrations that will help Spar relate this new capability to teleoperator markets. Machine vision will encompass object recognition as well as the ranging function performed by the Space Vision System. In the area of artificial intelligence, Mr. Boxall

has recommended that Spar use PROLOG, an international computer language that is the basis of the Japanese Fifth Generation Computer Program. At the same time Dr. Yuan is exploring advanced teleoperator control systems that will be needed for teleoperators with force feedback, machine vision and artificial intelligence.

Spar's close working relationship with the Institute is proving beneficial. We are on the steep part of a learning curve and universities provide excellent learning environments. As a longer term focus, Spar will explore concepts for future space robotics based on the more speculative ideas of the Canadian Institute for Advanced Research community. The result of this could be an important report identifying Canada as a serious participant in the development of space automation.

In many respects the pursuit of a distant beacon is the lighting of a candle, rather than bemoaning the darkness that surrounds us. It brings together not only the best minds in industry and the university community, but lights the way for our most promising young people to seek their futures in Canadian enterprise.

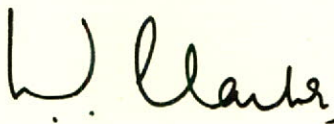
# Consolidated balance sheet

(\$000s) December 31, 1984


	1984	1983
<b>Assets</b>		
Current:		
Cash and short term notes		\$ 2,738
Marketable securities (notes 2 and 8)	\$ 29,177	38,901
Accounts receivable	39,293	35,502
Inventories (note 3)	31,924	27,714
Prepaid expenses	3,853	1,194
Total current assets	104,247	106,049
Accrued incentive revenue (note 4)	1,813	699
Fixed assets, net (note 5)	24,515	14,575
Loans receivable	2,055	
Goodwill, at cost less accumulated amortization (note 12)	3,961	3,161
Deferred costs less accumulated amortization	2,118	1,497
	<b>\$138,709</b>	<b>\$125,981</b>

(See accompanying notes to consolidated financial statements)

On behalf of the Board:



Director



Director

Spar Aerospace Limited  
Amalgamated under the Canada Business Corporations Act

(\$000s) December 31, 1984

	1984	1983
<b>Liabilities</b>		
Current:		
Bank indebtedness	\$ 5,427	
Accounts payable and accrued charges	28,578	\$ 28,342
Income and other taxes payable (note 6)	2,385	2,868
Dividend payable	876	794
Current deferred income taxes (note 6)	3,389	2,235
Current portion of long term debt (note 8)	1,780	1,262
Customer advance payments (note 3)	7,150	15,713
Total current liabilities	49,585	51,214
Long term debt (note 8)	6,776	5,634
Deferred income taxes (note 6)	2,808	3,666
Convertible subordinated debentures (note 7)	22,825	22,900
<b>Shareholders' equity</b>		
Share capital (note 9):		
Special Shares	152	157
Subordinate voting shares	30,278	23,356
	30,430	23,513
Retained earnings	26,285	19,054
Total shareholders' equity	56,715	42,567
	\$138,709	\$125,981

### Auditors' report

To the Shareholders of Spar Aerospace Limited:

We have examined the consolidated balance sheet of Spar Aerospace Limited as at December 31, 1984 and the consolidated statements of income, retained earnings and changes in financial position for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as we considered necessary in the circumstances.

In our opinion, these consolidated financial statements present fairly the financial position of the company as at December 31, 1984 and the results of its operations and the changes in its financial position for the year then ended in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Toronto, Canada  
February 14, 1985

*C. Clarkson Gordon*  
Chartered Accountants

# Consolidated statement of income

(\$000s) for the year ended December 31, 1984

	1984	1983
<b>Revenues</b>	<b>\$190,031</b>	\$209,321
Cost of sales including all expenses except items shown below (note 6)	<b>132,369</b>	160,203
Administrative and selling expenses	<b>25,529</b>	23,086
Research and development costs (note 6)	<b>3,882</b>	4,635
Depreciation and amortization	<b>4,226</b>	3,169
Interest on long term debt	<b>3,020</b>	2,480
Other interest income (net)	<b>(3,871)</b>	(4,541)
	<b>165,155</b>	189,032
Income from continuing operations before income taxes (EBIT)	<b>24,876</b>	20,289
Income tax expense (note 6)		
—current	<b>7,504</b>	6,595
—deferred	<b>1,456</b>	985
	<b>8,960</b>	7,580
Income from continuing operations	<b>15,916</b>	12,709
Loss from discontinued operations (note 13)	<b>(1,319)</b>	(2,286)
Income before extraordinary item	<b>14,597</b>	10,423
Extraordinary item—discontinued operations (note 13)	<b>(3,936)</b>	
<b>Net income for the year</b>	<b>\$ 10,661</b>	\$ 10,423
Earnings (loss) per subordinate voting share (in dollars) (note 9)		
Basic		
Continuing operations	<b>\$ 1.88</b>	\$ 1.73
Discontinued operations	<b>(.15)</b>	(.31)
Extraordinary item	<b>(.47)</b>	
Net income for the year	<b>\$ 1.26</b>	\$ 1.42
Fully diluted		
Continuing operations	<b>\$ 1.65</b>	\$ 1.43
Discontinued operations	<b>(.13)</b>	(.23)
Extraordinary item	<b>(.37)</b>	
Net income for the year	<b>\$ 1.15</b>	\$ 1.20

# Consolidated statement of retained earnings

(\$000s) for the year ended December 31, 1984

	1984	1983
Retained earnings, beginning of year	<b>\$ 19,054</b>	\$ 10,893
Net income for the year	<b>10,661</b>	10,423
Dividends on subordinate voting shares	<b>(3,430)</b>	(2,262)
<b>Retained earnings, end of year</b>	<b>\$ 26,285</b>	\$ 19,054

(See accompanying notes to consolidated financial statements)



# Consolidated statement of changes in financial position

(\$000s) for the year ended December 31, 1984

	1984	1983
<b>Working capital was provided by:</b>		
Operations—		
Income from continuing operations	\$ 15,916	\$ 12,709
Items not affecting working capital		
Depreciation and amortization	4,226	3,169
Deferred income taxes	(858)	579
Accrued incentive revenue	(1,155)	
Other	144	(21)
	18,273	16,436
Issue of convertible subordinated debentures (note 7)		25,000
Issue of subordinate voting shares and Special Shares (note 9)	6,842	6,705
Less portion applicable to employee share purchase plan loans (note 9)	(1,240)	
Increase in long term debt	2,006	
Other	309	517
<b>Total working capital provided</b>	<b>26,190</b>	<b>48,658</b>
<b>Working capital was applied to:</b>		
Purchase of fixed assets net of government grants and investment tax credits (1984—\$600; 1983—\$1,472)	13,738	4,788
Long term debt repayments and provision for current instalments (note 8)	1,127	1,292
Acquisition of Comtel (note 12)	4,988	
Write down of assets of discontinued operations (note 13)	1,274	
Loss from discontinued operations (note 13)	(56)	903
Deferred costs	1,047	1,640
Redemption of Junior Preferred Shares		34
Loans receivable	815	
Dividends	3,430	2,262
Conversion of subordinated debentures (note 7)	75	2,100
Less subordinate voting shares issued on conversion	(75)	(2,100)
<b>Total working capital applied</b>	<b>26,363</b>	<b>10,919</b>
Increase (decrease) in working capital	(173)	37,739
Working capital, beginning of year	54,835	17,096
<b>Working capital, end of year</b>	<b>\$ 54,662</b>	<b>\$ 54,835</b>
<b>Changes in working capital components:</b>		
Increase (decrease) in current assets—		
Cash, short term notes and marketable securities	\$ (12,462)	\$ 6,431
Accounts receivable	3,791	890
Inventories and prepaid expenses	6,869	(1,178)
	(1,802)	6,143
Increase (decrease) in current liabilities—		
Bank indebtedness	5,427	
Taxes (including current deferred income taxes)	671	(1,867)
Customer advance payments	(8,563)	(32,585)
Accounts payable and other current liabilities	836	2,856
	(1,629)	(31,596)
<b>Increase (decrease) in working capital</b>	<b>\$ (173)</b>	<b>\$ 37,739</b>

(See accompanying notes to consolidated financial statements)

# Notes to consolidated financial statements

(tabular amounts are in thousands of dollars)

## 1. Summary of accounting policies

The accompanying financial statements consolidate the accounts of the company and its subsidiaries and have been prepared by management in accordance with generally accepted accounting principles consistently applied. Because a precise determination of many assets and liabilities depends on future events, the preparation of financial statements for a period necessarily involves the use of estimates and approximations. The financial statements have, in management's opinion, been properly prepared within reasonable limits of materiality and within the framework of the accounting policies summarized below.

### (a) Revenue recognition

Revenue is accrued under the percentage of completion method as the work is performed and provision is made for any anticipated losses when the estimate of total costs on a contract indicates a loss. As some contracts extend over one or more years, any revisions in cost and profit estimates made during the course of the work are reflected in the accounting period in which the facts indicating a need for the revision become known. Some contracts contain incentive and/or penalty provisions based on performance relative to established targets. Such awards or penalties are included in revenue or cost estimates when such amounts can reasonably be determined.

### (b) Research and development costs

The company expenses all research and development expenditures as incurred with the exception of certain development costs related to the initial manufacture of new products which are deferred and amortized over a period of five years commencing in the year in which the cost is incurred. Should the company determine that no future benefit will accrue on a program, the unamortized deferred cost will be totally written off at that time.

### (c) Inventories

Inventories of raw materials and finished goods are valued at the lower of cost, applied on a moving average basis, and market value determined as the lesser of replacement cost or net realizable value. Contracts in process are valued at estimated sales value calculated on the percentage of completion basis when the work has advanced sufficiently to warrant such valuation and contracts in the initial stages are valued at cost.

### (d) Fixed assets

Additions to fixed assets are recorded at cost after deducting investment tax credits and government grants. Depreciation and amortization is provided by the straight-line method on a basis estimated to amortize the cost of the assets over their useful lives as follows:

Machinery and equipment	10% to 33 1/3%
Buildings	5%
Leasehold improvements	Term of the lease plus renewal option if applicable

Fixed assets include those lease obligations which transfer substantially all of the benefits and risks associated with ownership.

### (e) Goodwill

Goodwill represents the unamortized purchase price of purchased technology and is amortized on the basis of management's estimate of the useful lives of the technologies.

### (f) Foreign exchange

Transactions in foreign currencies are translated into Canadian dollars at the approximate rate prevailing at the time of the transactions. Assets and liabilities of foreign subsidiaries are translated at rates prevailing at the year end. Foreign exchange gains and losses are included in income for the year, except those which relate to long term monetary items which, beginning in 1984, are deferred and amortized.

## 2. Marketable securities

The company's marketable securities portfolio is carried at cost and consists of:

	1984		1983	
	Cost	Market	Cost	Market
Retractable preferred shares	\$ 5,037	\$ 5,025	\$10,465	\$10,732
Canadian government bonds	10,756	10,886	11,022	10,973
Corporate bonds	13,384	13,524	17,414	17,445
	<b>\$29,177</b>	<b>\$29,435</b>	\$38,901	\$39,150

### 3. Inventories

Inventories are classified as follows:

	(\$000s)	
	1984	1983
Contract costs and estimated earnings recognized to date	\$370,669	\$261,048
Less customer advance payments	342,928	237,446
	27,741	23,602
Raw materials, parts and supplies	3,631	3,571
Finished goods	552	541
	\$ 31,924	\$ 27,714

Customer advance payments in excess of contract costs and estimated earnings of \$7,150,000 (1983—\$15,713,000) are included in current liabilities.

### 4. Accrued incentive revenue

Accrued incentive revenue represents the non-current portion of the present value of cash payments, net of direct costs, that the company estimates it will receive relating to launched satellites.

### 5. Fixed assets

Fixed assets consist of the following:

	(\$000s)	
	1984	1983
Cost:		
Land	\$ 400	
Buildings and leasehold improvements	6,549	\$ 2,635
Machinery and equipment	34,506	27,743
Machinery and equipment under capital leases	2,757	
	44,212	30,378
Less accumulated depreciation and amortization	19,697	15,803
	\$ 24,515	\$ 14,575

### 6. Income taxes

#### Investment tax credits

Investment tax credits earned in the current year on scientific research and capital expenditures have been applied to reduce the cost of the related expenditures and assets as follows:

	(\$000s)	
	1984	1983
Fixed assets	\$ 600	\$ 700
Cost of sales	3,000	2,800
Research and development costs	1,000	1,000
	\$ 4,600	\$ 4,500

In addition, in 1984, investment tax credits relating to prior year's costs and expenses in the amount of \$3,900,000, not previously recognized in the accounts, were applied to reduce income tax expense by \$2,339,000.

#### Effective income tax rate

The company's income tax provision is made up as follows:

	(\$000s)	
	1984	1983
Combined basic Canadian Federal and Provincial income tax rate	47.0%	47.3%
Income tax expense prior to the following (reductions) increases	\$ 11,692	\$ 9,597
—Manufacturing and processing deduction	(1,580)	(1,345)
—Realization of prior year's investment tax credits	(2,339)	
—Sale of scientific research expenditures	1,016	
—Losses of foreign subsidiary	461	9
—All other items (net)	(290)	(681)
Income tax expense (continuing operations)	\$ 8,960	\$ 7,580

# Notes to consolidated financial statements (continued)

(tabular amounts are in thousands of dollars)

## Deferred income taxes

As a result of timing differences in the reporting of certain revenue and expense items for income tax purposes, income taxes have been deferred. Current deferred income taxes result from differences in the valuation of contracts in process inventory. The balance of deferred income taxes arises primarily from claiming depreciation in excess of that charged in the accounts, the deferral of incentive revenue and the recognition of investment tax credit benefits which the company will realize in future years.

## Loss carry forwards

The company has not recognized the tax benefit of losses in the amount of \$2,100,000. Of this amount, \$365,000 expires between 1985 and 1987 and \$1,735,000 expires in 1990 and beyond.

## Sale of scientific research expenditures

During the year, the company sold \$5,002,000 of scientific research expenditures. The net proceeds of

\$2,500,000 from the sale have been reflected in these financial statements as a reduction of cost of sales. The company performed sufficient qualifying scientific research throughout the year to eliminate any potential income tax liability under Part VIII of the Income Tax Act.

## 7. Convertible subordinated debentures

On May 10, 1983, the company issued \$25,000,000 of unsecured 8% convertible subordinated debentures due May 1, 1988. At the option of the holder, debentures may be converted into subordinate voting shares at the rate of \$19.00 for each subordinate voting share at any time prior to maturity and prior to the day fixed by the company for redemption or conversion. At any time after April 30, 1986, the company, at its option, may redeem the debentures in whole or in part at the redemption price of 108% of the principal amount or convert the debentures in whole or in part into one Preferred Share, First Series for each \$100.00 principal amount. On August 20, 1984, \$75,000 of debentures were converted into 3,947 subordinate voting shares.

## 8. Long term debt

	Total liability	(\$000s) Portion due in 1985 shown in current liabilities	Long term
Bank term loan bearing interest at 15.9% repayable in annual instalments of \$500,000 (U.S. funds) to April 30, 1985 and the balance of \$3,000,000 (U.S. funds) by April 30, 1986	\$4,620	\$ 660	\$3,960
Bank term loan bearing interest at 17.7% repayable in semi-annual instalments of \$175,000 (U.S. funds) to January 31, 1987	1,155	462	693
Capital lease obligations expiring from 1987 to 1989 bearing interest at 12.0% to 14.5%	2,500	494	2,006
Other	281	164	117
	<u>\$8,556</u>	<u>\$1,780</u>	<u>\$6,776</u>

Long term debt is repayable as follows:	(\$000s)
1985	\$1,780
1986	5,021
1987	886
1988	440
1989	429
	<u>\$8,556</u>

In respect of certain major contracts, the company is contingently liable under the terms of various letters of credit in the amount of \$20,000,000 against which the company has pledged certain of its marketable securities as security.

## 9. Share capital

A summary of changes to issued share capital for the year ended December 31, 1984 is as follows:

(\$000s)	Subordinate voting		Special		Total
	Shares	\$	Shares	\$	\$
Issued and outstanding, December 31, 1983	7,956,173	23,356	1,118,375	157	23,513
a) Issue of subordinate voting shares for cash under employee share purchase plan	368,701	4,007			4,007
b) Exercise of warrants for cash	371,898	2,603			2,603
c) Exercise of options for cash	62,000	232			232
d) Conversion of subordinated debentures to subordinate voting shares	3,947	75			75
e) Conversion of Special Shares to subordinate voting shares	674	5	(33,949)	(5)	
Issued and outstanding, December 31, 1984	8,763,393	\$30,278	1,084,426	\$152	\$30,430
Authorized, December 31, 1984					
Class	Unlimited		12,000,000		

### Preferred Shares

Preferred Shares (authorized 10,000,000 shares) may be issued in one or more series with such designation, preferences, rights, privileges, restrictions and conditions attached as may be determined by the directors.

In connection with the issue of the convertible subordinated debentures (note 7) 250,000 Preferred Shares of a new series have been designated as Non-cumulative Redeemable Preferred Shares, First Series. None of the Preferred Shares, First Series were issued in 1984.

The holders of the Preferred Shares, First Series are entitled to fixed non-cumulative preferential cash dividends, as and when declared by the directors, at the rate of \$7.00 per share per annum payable quarterly on such dates as the directors may determine.

The company may, upon giving notice, redeem at any time the whole, or from time to time any part of the then outstanding Preferred Shares, First Series on the basis of \$100.00 plus all declared but unpaid non-cumulative preferential dividends for each share.

### Junior Preferred Shares

The Junior Preferred Shares may be issued in one or more series with such designation, preferences, rights, privileges, restrictions and conditions attached as may be determined by the directors.

### Special Shares

The articles of the company provide that, subject to the Canada Business Corporations Act, Special Shares are

not transferable except in certain limited circumstances. Such shares rank, as to payment of dividends and repayment of capital, junior to all other existing shares of the company and are not entitled to receive, in the case of repayment of capital, any amounts in addition to the amount paid up thereon. The Special Shares are not entitled to dividends except in a year for which dividends of at least \$0.375 have been paid on the subordinate voting shares, in which case dividends may be paid, subject to certain prescribed limits. Each Special Share entitles the holder to 10 votes at a meeting of shareholders. The Special Shares are not redeemable on or prior to June 30, 1991 (but may be redeemable thereafter at \$0.075 per share), are purchasable by the company at any time and are convertible into subordinate voting shares at any time on the basis of one subordinate voting share for 50 Special Shares. The Special Shares carry a preemptive right entitling the holders to receive newly issued Special Shares in proportion to such shareholders' holdings of Special Shares.

On any issue of additional subordinate voting shares (except in certain circumstances) or on the issue of any security convertible into subordinate voting shares, the company is required to offer to the Special shareholders, at a specified price, sufficient additional Special Shares in proportion to their holdings of Special Shares to bring the number of Special Shares to be outstanding thereafter up to 10% of the number of subordinate voting shares outstanding on a fully diluted basis. Neither Special Shares nor subordinate voting shares are to be subdivided or consolidated without the other being subdivided or consolidated on the same basis.

# Notes to consolidated financial statements (continued)

(tabular amounts are in thousands of dollars)

## Subordinate voting shares

The holders of subordinate voting shares are entitled to one vote per share at all meetings of shareholders (see Special Shares above) and to receive dividends when declared by the directors. Each subordinate voting share is equal to every other subordinate voting share and, in the event of the distribution of assets in connection with the dissolution of the company, the holders of subordinate voting shares are entitled, subject to the prior rights of the holders of Preferred Shares and Junior Preferred Shares but in priority to the rights of holders of Special Shares, to receive the amount paid up on such subordinate voting shares together with any declared and unpaid dividends. Thereafter in such event, and after payment to the holders of Special Shares of the amount paid up on such Special Shares together with any declared and unpaid dividends thereon, the holders of subordinate voting shares are entitled to receive the remaining property of the company.

## Warrants

Each share purchase warrant entitles the holder to purchase two subordinate voting shares for each warrant held at \$7.00 per share if exercised on or prior to February 28, 1985. At December 31, 1984, 170,674 warrants remain outstanding.

## Stock options

Under an incentive stock option plan, there are outstanding options to full-time officers and other employees to purchase subordinate voting shares of the company. In 1984, 62,000 options were exercised. During the year, subject to shareholder approval, the company granted options to full-time officers and other employees to purchase 350,000 subordinate voting shares at a price of \$24.00 per share exercisable at various periods through 1994.

At December 31, 1984, 594,000 subordinate voting shares were reserved for issuance upon the exercise of options, including 569,000 subordinate voting shares to officers of the company, at prices ranging from \$3.205 to \$24.00 per share. These options may be exercised at various periods to 1994.

## Employee share purchase plan

In 1984 the company introduced a subordinate voting share purchase plan to qualified employees. The plan allows each employee to purchase subordinate voting shares of the company having an aggregate cost to the employee of 7½% of the employee's annualized base earnings as at February 9, 1984. The purchase price per share under this plan is \$18.73. The company is providing an interest-free loan to the full amount of the

employee's commitment, repayable over three years and secured by subordinate voting shares purchased under the plan. At the end of each of these three years, the company will pay a bonus to each participant equal to 13½% of the employee's commitment to be used to purchase additional subordinate voting shares. In total, the 1984 plan will result in the purchase of up to 241,900 shares by 1,242 employees at a total value of \$4,530,800. At December 31, 1984, outstanding loans amounted to \$2,303,000, of which \$1,240,000 is included in loans receivable and the balance in accounts receivable.

A similar share purchase plan is to be offered to employees in 1985.

## Shares required for future issue

At December 31, 1984, a total of 2,227,476 subordinate voting shares may be required for future issue as follows: 21,692 for conversion of the Special Shares, 341,348 for exercise of the warrants, 594,000 for exercise of stock options, 1,201,316 for conversion of subordinated debentures and approximately 69,120 for participants in the 1984 employee share purchase plan.

## Net income per subordinate voting share

Basic net income per subordinate voting share is calculated on net income divided by the weighted weekly average of shares outstanding. Fully diluted earnings per share assumes: (1) the conversion of all issued Special Shares on the basis of 50 Special Shares for each subordinate voting share; (2) the exercise of all outstanding warrants and options on the basis of two subordinate voting shares for each warrant and one subordinate voting share for each option; (3) the effect of unissued shares to employees participating in the employee share purchase plan; (4) the conversion of all outstanding subordinated debentures on the basis of \$19.00 for each subordinate voting share; and (5) the recognition of imputed earnings after tax at the rate of 5.4% (\$1,629,000) on cash that would have been received therefrom.

The number of shares (in thousands) used in the computations were as follows:

	1984	1983
Basic subordinate voting shares	8,462	7,329
Additional shares issuable on conversion:		
Special Shares	22	18
Warrants and options	874	1,364
Employee share purchase plan	91	388
Convertible subordinated debentures	1,204	827
Fully diluted subordinate voting shares	10,653	9,926

10. Operating lease commitments		((\$000s))
Facility	Year of expiry	Annual rental
Toronto—Caledonia Road	1989	\$ 341
—Ormont Drive	1988	353
Ottawa —Kanata	1985	372
Other	1985-1988	637
		<u>\$1,703</u>

### 11. Pension and retirement plans

Pension contributions by employees together with those made by the company are deposited with trustees according to the terms of the plans. Pensions at retirement are related to various factors including, remuneration, years of service and in the case of certain officers the market value of the company's subordinate voting shares.

Actuarial valuations as of December 31, 1983 indicated an excess of fund assets over the actuarially computed current service obligations. The company's policy is to amortize such surplus over three years and has included one-third of this surplus in income in 1984, which, after certain offsets and income taxes, increased net income in the year by approximately \$390,000 (1983—\$585,000).

The amount charged to earnings in respect of all pension and retirement plans was \$1,887,000 (1983—\$1,628,000).

Based on actuarial valuations of the company's pension plans at December 31, 1983, the estimated past service liability unfunded and unrecorded in the accounts is \$1,578,000 at December 31, 1984 (1983—\$5,078,000) and will be amortized and funded over a period of up to 15 years.

Unfunded vested benefits related to certain retirement plans are estimated to be \$1,138,000 (1983—\$1,133,000). These amounts are not recorded in the accounts.

### 12. Acquisition

On October 19, 1984, the company acquired all of the outstanding shares of Commercial Telecommunications Corporation (Comtel), located in Santa Maria, California. Comtel is a pioneer in the development and application of Time Division Multiple Access (TDMA) tech-

nologies used in commercial and defence satellite communications. Details of the acquisition, which has been accounted for as a purchase, are as follows:

Assets, at fair values:	((\$000s))
Current assets	\$1,768
Fixed assets	1,027
Goodwill	3,961
	<u>6,756</u>
Less current liabilities	(5,649)
Net assets acquired for cash	<u>\$1,107</u>

The goodwill representing purchased technology will be amortized on a straight-line basis over five years beginning in 1985. Additional payments for technology, to be based on shipments of specified Comtel products in the years 1985 through 1989, will be recorded as goodwill and amortized on a straight-line basis over succeeding five year periods.

### 13. Northway-Gestalt Corporation

On December 31, 1984, the company discontinued the aerial survey and mapping operations of its subsidiary, Northway-Gestalt Corporation, due to the general decline in the market for such services and the recurring losses sustained in this part of its operations.

The company has estimated a provision for loss on closure of the discontinued business net of the proceeds from that portion of the business sold as at December 31, 1984. The provision for loss shown as an extraordinary item in the income statement is \$3,936,000 (net of income tax recovery of \$848,000) and includes the write-off of the unamortized balance of goodwill in the amount of \$2,371,000, the write-down of remaining asset values and provision for closure costs of \$2,413,000.

The operations of the discontinued business for the periods presented are summarized as follows:

	(\$000s)	
	1984	1983
Revenues	<b>\$4,426</b>	\$5,550
All costs other than shown below	<b>4,682</b>	7,412
Depreciation and amortization	<b>585</b>	591
Amortization of goodwill	<b>790</b>	792
	<b>6,057</b>	8,795
Loss before income taxes	<b>1,631</b>	3,245
Income tax recovery	<b>312</b>	959
Loss from discontinued operations	<b>\$1,319</b>	\$2,286

The consolidated statement of income has been reclassified to show the loss from discontinued operations separately.

# Notes to consolidated financial statements (continued)

(tabular amounts are in thousands of dollars)

## 14. Industry segment information

The company's operating divisions have been grouped into two industry segments.

It is the company's policy to price internal sales or transfer values for services, generally on an equivalent basis as that used for pricing externally. Certain of the 1983 comparative figures have been reclassified to conform with the presentation of continuing operations.

(\$000s)	Gears and transmissions, aviation and other services		Satellites, communications and advanced systems		Eliminations		Consolidated	
	1984	1983	1984	1983	1984	1983	1984	1983
External revenues	\$60,091	\$45,401	\$129,940	\$163,920			\$190,031	\$209,321
Intersegment revenues	1,965	3,139			\$(1,965)	\$(3,139)		
Total revenues	\$62,056	\$48,540	\$129,940	\$163,920	\$(1,965)	\$(3,139)	\$190,031	\$209,321
Segment operating profit	\$11,953	\$6,744	\$20,074	\$18,755	\$(379)	\$(295)	\$31,648	\$25,204
General corporate expenses							(7,623)	(6,976)
Interest on long term debt							(3,020)	(2,480)
Other interest income (net)							3,871	4,541
Income taxes							(8,960)	(7,580)
Income from continuing operations							\$15,916	\$12,709
Identifiable assets	\$44,819	\$43,651	\$51,592	\$39,106			\$96,411	\$82,757
Corporate assets							42,298	43,224
Total assets							\$138,709	\$125,981
Capital expenditures	\$931	\$1,525	\$9,148	\$2,285				
Depreciation and amortization	\$1,427	\$1,171	\$2,392	\$1,849				

- The company operates principally in Canada.
- The company's revenues from export markets were approximately \$129,300,000 in 1984 (1983—\$165,500,000).
- A significant portion of the company's business is with various branches and agencies of the Canadian government and crown corporations as well as with foreign government agencies.

Gears and transmissions, aviation and other services includes: (i) gears and transmission systems and equip-

ment for gas turbine engines, fixed and rotary wing aircraft and robotic applications; and (ii) repair and overhaul of a wide range of commercial and military aircraft instrumentation and mechanical components and helicopter maintenance.

Satellites, communications and advanced systems includes: (i) satellite systems and subsystems and ground-based satellite communications systems; (ii) remote manipulator systems for space and terrestrial applications; and (iii) defence systems.

## Supplemental information (unaudited)

### Reporting the effects of changing prices

In accordance with the recommendations issued by the CICA, management has calculated the effects of changing prices on its operations for the years 1984 and 1983 and has determined that the effect is not material.



# Ten-year review

(dollars in thousands, except per share figures)

	1984	1983	1982	1981	1980	1979	1978	1977	1976	1975
Earnings (loss) per share										
Basic										
—income (loss) from continuing operations	<b>\$1.88</b>	\$1.73	\$1.34	\$0.44	(\$0.17)	\$0.31	\$0.53	\$0.41	\$0.30	\$0.21
—net income (loss)	<b>\$1.26</b>	1.42	1.43	0.37	(0.28)	0.31	0.53	0.41	0.30	0.21
Fully diluted										
—income from continuing operations	<b>\$1.65</b>	1.43	1.06	0.40*	**	0.28	0.40	0.36	0.28	0.19
—net income	<b>\$1.15</b>	1.20	1.12	0.34*	**	0.28	0.40	0.36	0.28	0.19
Cash dividends paid per										
Subordinate voting share	<b>\$0.40</b>	0.35	0.20		0.15	0.15	0.11	0.07	0.07	0.06
Preferred Share			0.54	1.08	1.08	1.08	1.06			
Deferred Share						0.05	0.03			
Shareholders' equity per subordinate voting share outstanding at year end	<b>\$6.45</b>	5.33	3.85	2.58	2.20	2.28	2.40	1.98	1.75	1.52
Revenues (1)	<b>\$190,031</b>	209,321	169,121	113,101	120,986	108,813	91,869	70,089	37,347	28,716
Income (loss) from continuing operations	<b>\$ 15,916</b>	12,709	8,049	2,554	(375)	1,605	2,184	1,311	956	638
Net income (loss)	<b>\$ 10,661</b>	10,423	8,580	2,167	(877)	1,605	2,184	1,311	956	638
Capital expenditures (net of government grants and tax credits) (2)	<b>\$ 13,738</b>	4,788	2,525	1,678	4,155	4,567	2,851	4,000	751	664
Long term debt (including current portion) (2)	<b>\$ 31,381</b>	29,796	8,256	12,198	7,000	945	710	1,272	2,280	2,538
Shareholders' equity	<b>\$ 56,715</b>	42,567	25,635	17,463	15,645	14,730	13,854	12,441	5,616	4,860
Working capital (2)	<b>\$ 54,662</b>	54,835	17,096	11,758	3,227	6,089	7,979	7,621	4,759	4,248
Ratio of current assets to current liabilities (2)	<b>2.1</b>	2.1	1.2	1.3	1.1	1.2	1.4	1.6	1.8	1.9
Number of employees (2)	<b>2,172</b>	2,041	1,902	1,895	2,100	1,900	1,670	1,400	730	700
Number of shareholders										
Subordinate voting	<b>4,452</b>	3,489	2,800	2,930	2,970	2,690	2,150	2,060	2,120	2,150
Preferred and Special	<b>42</b>	57	64	620	675	780	744			

\* Does not include exercise of warrants which would be anti-dilutive.

\*\* Fully diluted not shown as effect would decrease loss per share.

(1) Amounts reported are for continuing operations only. Years prior to 1984 have been restated to exclude discontinued operations.

(2) Amounts reported for 1984 and prior years have not been restated; such years include historical amounts for discontinued operations.

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## Directors

**David R. Beatty**

President Garbell Holdings Limited  
(Elected director 1983)

**David S. Beatty†**

President  
Beatinvest Limited  
(Elected director 1969)

**Larry D. Clarke\***

Chairman of the Board and  
Chief Executive Officer  
Spar Aerospace Limited  
(Elected director 1967)

**Camille A. Dagenais**

Chairman of the Board  
The SNC Group  
(Elected director 1980)

**Roland B. Dodwell\***

President  
R. B. Dodwell Ltd.  
(Elected director 1967)

**John D. Houlding†**

President and Chief Executive  
Officer  
Polar Gas Project  
(Elected director 1977)

**William H. Jackson\***

Engineering Consultant  
(Elected director 1967)

**Philip A. Lapp\***

President  
Philip A. Lapp Limited  
(Elected director 1967)

**Earl H. Orser†**

President and Chief Executive  
Officer  
London Life Insurance Company  
(Elected director 1978)

**R. Don Pollock**

President and Chief Operating  
Officer  
Spar Aerospace Limited  
(Elected director 1984)

**David A. B. Steel\***

Vice President and Director  
McLeod Young Weir Limited  
(Elected director 1967)

**Barbara L. Steele†**

Company Director  
(Elected director 1980)

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## Officers

**Larry D. Clarke**

Chairman of the Board and  
Chief Executive Officer

**Roland B. Dodwell**

Vice Chairman of the Board

**R. Don Pollock**

President and Chief Operating  
Officer

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**E. Peter Birch**

Vice President, Administration

**David C. Cleland**

Vice President and Corporate  
Controller

**George B. Gomes**

Senior Vice President

**Eric R. Grimshaw**

Vice President and General Manager  
Remote Manipulator Systems  
Division

**John E. Lockyer**

Vice President and General Manager  
Defence Systems Division

**John D. MacNaughton**

Senior Vice President

**Thomas G. Mathers**

Vice President, Human Resources

**I. A. (Don) Mayson**

Vice President, Business  
Development

**J. Ron McCullough**

Vice President,  
Technology and Development

**John Neville**

Vice President and Treasurer

**Ken J. Perry**

Vice President

**Sheldon Polansky**

Legal Advisor and Secretary

**William B. Simpson**

Vice President and General Manager  
Gears and Transmissions Division

**Christopher G. Trump**

Vice President and Executive  
Assistant to the Chairman

†Member of the Audit Committee

\*Member of the Executive Committee

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# Corporate information

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## **Executive Offices**

Royal Bank Plaza, South Tower  
P.O. Box 83, Toronto, Canada  
M5J 2J2  
(416) 865-0480

## **Corporate Office**

6303 Airport Road, Suite 403  
Mississauga, Ontario L4V 1R8

## **Government Relations Office**

77 Metcalfe Street, Suite 200  
Ottawa, Ontario K1P 5L6

## **Aviation Services Division**

825 Caledonia Road  
Toronto, Ontario M6B 3X8

## **Communications Systems Division**

21025 Trans Canada Highway  
Ste-Anne-de-Bellevue, Quebec  
H9X 3R2

## **Defence Systems Division**

4100 Weston Road  
Weston, Ontario M9L 1W7

P.O. Box 13050  
Kanata, Ontario K2K 1X3

## **Gears and Transmissions Division**

825 Caledonia Road  
Toronto, Ontario M6B 3X8

## **Remote Manipulator Systems Division**

1700 Ormont Drive  
Weston, Ontario M9L 2W7

## **Satellite and Aerospace Systems Division**

21025 Trans Canada Highway  
Ste-Anne-de-Bellevue, Quebec  
H9X 3R2

## **Wholly-owned subsidiaries**

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### **Astro Aerospace Corporation**

6384 Via Real  
Carpinteria, California 93013-2993  
U.S.A.

### **Commercial Telecommunications Corporation**

3130 Skyway Drive, Building 604  
Santa Maria, California 93455  
U.S.A.

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### **Auditors**

Clarkson Gordon

### **Transfer Agents**

The Canada Trust Company

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