

Spar Aerospace Limited Annual Report 1988



# **Corporate Profile**

Spar Aerospace Limited is a Canadian shareholder-owned company engaged in the design, development, manufacture and servicing of systems for the space, remote manipulation, communications, defence electro-optics and aviation markets.

The company employs over 2,000 people, including about 600 engineers and technicians – one of the largest technological groups in the private sector in Canada.

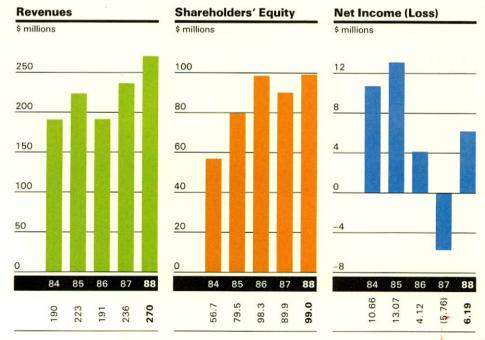
Since its inception in 1968, Spar has gained international recognition as an advanced technology company. Approximately 50% of Spar's sales are in international markets. Spar devotes 20% of its engineering activities to research and development, including cooperative programs with several Canadian universities.

Cover: Spar's Jim Graham checks out the Olympus satellite at the David Florida Laboratory outside Ottawa. Olympus, the largest satellite built by the European Space Agency with British Aerospace as the prime contractor, is scheduled for launch in June, 1989. Spar was responsible for the design, integration and testing of the solar arrays which will generate electrical power in space.

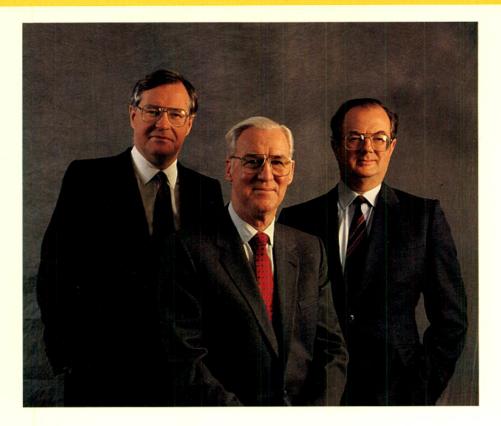
# **Financial Highlights**

December 31, 1988

(\$000s)	1988	1987 (Restated)
Revenues	\$269,967	\$236,121
Income before extraordinary item	6,189	4,037
Net income (loss) for the year	6,189	(5,763)
Working capital	27,844	30,582
Long term debt	2,581	834
Dividends on subordinate voting shares	3,125	3,894
Shareholders' equity	99,041	89,916
(in dollars) Income before extraordinary item per subordinate		
voting share	\$0.56	\$ 0.38
Net income (loss) per subordinate voting share Shareholders' equity per subordinate voting share	0.56	(0.53)
outstanding at year end	8.79	8.29







From left to right:
Anthony L.
Anderson,
Executive Vice
President, Larry D.
Clarke, Chairman
of the Board and
Chief Executive
Officer, and John
D. MacNaughton,
Executive Vice
President.

#### 1988 Results

For the year ended December 31, 1988 Spar Aerospace Limited had revenues of \$270 million compared to \$236 million in 1987 and net income of \$6.2 million (56¢ per share) compared to a restated income before extraordinary items of \$4 million (38¢ per share) and a net loss after extraordinary items of \$5.8 million (53¢ per share) the previous year.

The profit performance for 1988 was adversely affected for two reasons. The Anik E communications satellite project did not make its planned contribution to the year's results due to delays in the delivery of structural equipment produced by a major subcontractor. The Gears and Transmissions Division recorded a significant loss in 1988 largely due to the extensive rework required to complete the Black Hawk program, exacerbated by the impact of the higher Canadian dollar and the competitive market existing in 1988 for new orders. Improvements in labor relations, quality control and productivity achieved in 1988 have enhanced the prospects of this unit for 1989.

#### **Business Highlights**

The successful flights in 1988 of the U.S. Space Shuttle and the Ariane rocket, and the availability of low-cost rocket launchers from the Peoples' Republic of China have revived the world market for commercial satellites. Competitively priced launchers will lead to lower cost satellite communications systems to the ultimate buyer, which will help to strengthen this important Spar market.

Prospects for two major satellite contracts – Radarsat and Mobile Satellite (MSAT) – are improving. With the support of the provincial governments, the

federal government should be in a position to award a production contract for Radarsat. MSAT is awaiting a decision by the Federal Communications Commission resolving the allocation of frequencies to users in the United States.

Last April, Spar achieved an important breakthrough in the European commercial satellite market when Alcatel Espace of France awarded the company a \$15 million contract to supply telecommunications systems for France's new Telecom 2 satellite.

Spar has assembled a high calibre team, including SA MATRA and Alcatel to submit a proposal this year to Brazil to produce the Brasilsat III and IV communications satellites. We are optimistic that the excellent performance of the Spar-built Brasilsat I & II will place us in a good competitive position. In defence communications, the company is continuing its research for the Canadian Department of National Defence on an extremely high frequency (EHF) range satellite system planned for the 1990's.

In 1988, the Canadian government awarded Spar a \$31 million contract to complete the preliminary design of the Mobile Servicing System, Canada's contribution to NASA's International Space Station. The Mobile Servicing System is an integral part of the Space Station. This contract is the first in an expected series that will run into the late 1990's. In addition, Spar's subsidiary, Astro Aerospace, is continuing to work on a \$55 million contract for McDonnell Douglas for the Mobile Transporter, an element of the U.S. portion of the Space Station.

Spar's electro-optics operations are rapidly emerging as a major business for the company. There is a growing awareness among the military of the need for electro-optical systems for surveillance, a development which has enabled this technology to penetrate one of the fastest growing military markets.

Last March the company won a \$40 million contract to produce the "Tiger-Eye" long range night observation device (NODLR) for the Canadian Forces and there is the prospect of follow-on business. In November 1988, Martin Marietta Corporation authorized long-lead procurements for the supply of 47 Forward Looking Infrared (FLIR) systems for the U.S. and other international Air Defence Anti-Tank Systems (ADATS<sup>TM</sup>) programs. In addition, authorization was received to complete the engineering development of the AN/SAR-8 naval infrared surveillance system which raised the total value of this development contract to \$140 million. Should tests to be undertaken by the U.S. Navy this year prove successful, Spar expects to receive a contract for the production of shipboard units.

Spar's total investment in 1988 in research and development, including sponsored research, was in excess of \$20 million.

#### **Corporate Developments**

Last year the company merged its satellite and ground based communications businesses in Canada and the U.S. into the Satellite and Communications Systems Division (S&CSD). This restructuring has enhanced Spar's ability to serve cus-

tomers with a fully integrated communications capability covering domestic as well as international markets for satellites and related ground equipment.

In September, Mr. Anthony L. Anderson and Mr. John D. MacNaughton were appointed Executive Vice Presidents with joint responsibility for the operations of the company.

Spar has purchased a 29% equity interest in Nordco Limited of St. John's, Newfoundland, a small but profitable technology company that manufactures and markets specialized high technology equipment and services to the maritime industry. With Spar's financial and technical support, Nordco will be able to better penetrate the markets it presently serves and also move into new markets in cooperation with Spar.

#### **World Markets**

Changing patterns of world trade, heralded in North America by the recent signing of the Free Trade Agreement between Canada and the United States followed in 1992 by the formation of a unified market in Western Europe, will create the biggest markets ever seen for advanced technology. Exploiting these huge markets will require resources of capital, people skills and technology beyond the scope of any one business. Consequently, Spar is engaged in discussions with leading international space and defence companies with a view to forming strategic alliances which should enable the company to take advantage of opportunities that would otherwise be closed to a company of Spar's relatively small size.

#### Outlook

Largely due to the difficulties encountered by the satellite launch industry, Spar has experienced several years of disappointing levels of order intake and profit. The outlook for 1989 is encouraging for order intake and as a consequence profits should increase over 1988.

There are clear signs that the long hiatus in the worldwide satellite industry is coming to an end. This year, Spar expects an increased level of orders for satellite sub-systems as well as at least one prime contract which should form a strong base for revenue and profit growth in subsequent years.

On behalf of the Board, I should like to thank all Spar staff for their commitment to our business and our more than 4,000 shareholders for their support.

Larry D. Clarke

Chairman and Chief Executive Officer

March 7, 1989

# Management's Responsibility for Financial Reporting

The management of Spar Aerospace Limited and its subsidiaries is responsible for preparing the accompanying financial statements and for their integrity and objectivity. The statements were prepared in accordance with generally accepted accounting principles applied on a consistent basis and are to the best of our knowledge and belief fairly stated. The financial statements include amounts that are based on management's best estimates and judgements. Management prepared all the information in the annual report and is responsible for its accuracy and consistency with the financial statements.

Management maintains a system of internal control that provides reasonable assurance as to the integrity and reliability of the financial statements, the protection of assets from unauthorized use or disposition, and the prevention and detection of fraudulent financial reporting. The system of internal control provides for appropriate division of responsibility and is documented by written policies and procedures that are communicated to employees who have a significant role in the financial reporting process. Management has established procedures to monitor the activities of the company to ensure compliance with the system of internal control.

The company has an Audit Committee of the Board of Directors. At the request of the Committee, management attends its meetings to review matters relating to the financial reporting process.

The accompanying consolidated financial statements have been audited by Clarkson Gordon who were appointed as the company's external auditors by the shareholders at the last annual meeting. Management has made available to the external auditors all financial records and related data. Furthermore, management believes that all representations made to the external auditors during their audit were valid.

Spar maintains an internal audit program that independently assesses the effectiveness of internal controls and recommends improvements. In addition,

as part of the audit of Spar's financial statements, the external auditors complete a review of the company's internal controls to establish a basis for determining the nature, timing, and extent of audit tests to be applied. Management has considered the internal and external auditors' recommendations concerning the system of internal control and has taken actions which it believes are costeffective to respond appropriately to these recommendations. Management believes that, as of December 31, 1988, the company's system of internal control was adequate to accomplish these objectives.

Management also recognizes its responsibility for ensuring that Spar's business is conducted with integrity. This responsibility is reflected in the Spar business conduct policy to which all senior employees are required to make a commitment. The business conduct policy addresses relationships with customers, suppliers and competitors; potential conflicts of interest; compliance with the law and confidentiality of company information. Management reviews this policy with all Spar employees annually and has procedures in place to assess compliance with the policy.

U Clarke

Larry D. Clarke Chief Executive Officer

Anthony L. Anderson Chief Financial Officer

March 7, 1989

# **Audit Committee Report**

The Audit Committee of the Board of Directors is composed of a minimum of three and a maximum of five directors who are not officers or employees of the company. The Committee meets quarterly to oversee, on behalf of the Board of Directors, the company's financial reporting process.

In fulfilling its responsibilities during the past year, the Committee:

- Reviewed the overall scope and plans for audits by the internal and external auditors;
- Reviewed the actions taken by management with respect to the recommendations made by the internal and external auditors;
- Met with the external auditors, without management present, to discuss the results of their audit, their evaluation of the company's internal controls, and the overall quality of the company's financial reporting and internal audit process;
- Reviewed the accounting principles and policies adopted by the company and discussed the interim and annual financial statements issued by the company to its shareholders;
- Recommended to the Board of Directors the reappointment of Clarkson Gordon as the company's external auditors.

Earl H. Orser

Audit Committee Chairman

# **Auditors' Report**

To the Shareholders of Spar Aerospace Limited:

We have examined the consolidated balance sheet of Spar Aerospace Limited as at December 31, 1988 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, 1988 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 10, 1989 Chartered Accountants

(\$000s)	1988	1987
Assets		
Current assets:		
Marketable securities (note 2)	\$ 62,110	\$ 63,037
Accounts receivable	60,276	62,585
Income tax recoverable	<del>-</del>	1,836
Inventories (note 3)	52,534	29,280
Prepaid expenses and other	1,208	698
Current deferred income taxes	<del>-</del>	1,436
Total current assets	176,128	158,872
Accrued incentive revenue	16,401	12,591
Fixed assets (note 4)	39,236	38,745
Loans receivable	3,575	955
Long term investment (note 5)	2,152	3,278
Deferred pension costs	12,071	9,401
Deferred development costs	6,755	4,085
Total Assets	\$256,318	\$227,927
Liabilities and Shareholders' Equity		
Current liabilities:		
Bank indebtedness	\$ 66,379	\$ 58,806
Accounts payable and accrued charges	71,155	59,365
Customer advance payments (note 3)	8,753	9,545
Current portion of long term debt (note 6)	618	574
Current deferred income taxes	1,379	)
Total current liabilities	148,284	128,290
Long term debt (note 6)	2,581	834
Deferred income taxes	6,412	8,887
Shareholders' equity		
Share capital (note 7)	71,344	65,283
Retained earnings (note 15)	27,697	24,633
Total shareholders' equity	99,041	89,916
Total Liabilities and Shareholders' Equity	\$256,318	\$227,927

(See accompanying notes to consolidated financial statements)

On behalf of the Board:

Director

Spar Aerospace Limited amalgamated under the Canada Business Corporations Act.

# **Consolidated Statement of Income**

For the year ended December 31, 1988

(\$000s)		1988		1987 (Restated – Note 15)
Revenues	\$2	69,967	\$2	236,121
Cost of revenues including all expenses except items shown below (note 8)  Administrative and selling expenses	2	10,523 33,571	•	181,322 29,894
Research and development costs (notes 8 and 11) Depreciation and amortization		4,199 12,306		5,486 9,225
Other income, net Amortization of goodwill		139 (840) —		239 (1,482) 500
	2	59,898	2	225,184
Income before the undernoted items Unusual item (note 13)		10,069		10,937 3,700
Income before income taxes and extraordinary item Income tax expense (note 8)		10,069 3,880		7,237 3,200
Income before extraordinary item Provision for restructuring costs (note 14)		6,189 —		4,037 9,800
Net income (loss) for the year	\$	6,189	\$	(5,763)
Earnings (loss) per subordinate voting share (in dolla Income before extraordinary item Net income (loss) for the year	rs) \$ \$	.56 .56	\$	.38

# **Consolidated Statement of Retained Earnings**

For the year ended December 31, 1988

(\$000s)	1988	1987 (Restated – Note 15)
Retained earnings, beginning of year as restated	\$ 24,633	\$ 34,290
Net income (loss) for the year	6,189	(5,763)
Dividends on subordinate voting shares	(3,125)	(3,894)
Retained earnings, end of year	\$ 27,697	\$ 24,633

(See accompanying notes to consolidated financial statements)

(\$000s)	1988	1987
Operating activities		
Net income (loss) for the year (note 15)	\$ 6,189	\$ (5,763)
Items not affecting cash (note 12)	6,166	7,227
	12,355	1,464
Net (increase) decrease in cash invested in working		
capital related to operations (note 12)	(8,874)	19,797
Other	230	(32)
Net cash from operating activities	3,711	21,229
Financing activities		
Issue of subordinate voting shares	6,061	1,263
Loans receivable	(2,620)	1,141
Increase in long term debt	2,365	73
Long term debt repayments	(574)	(1,083)
Dividends paid	(2,872)	(4,318)
Net cash from (used in) financing activities	2,360	(2,924)
Investment activities		
Additions to fixed assets	(11,981)	(17,499)
Common shares purchased	(1,474)	_
Proceeds of debentures redeemed	2,600	_
Deferred development	(3,716)	(2,560)
Net cash used in investment activities	(14,571)	(20,059)
Decrease in cash	(8,500)	(1,754)
Cash, beginning of year	4,231	5,985
Cash (indebtedness) end of year	\$ (4,269)	\$ 4,231

<sup>&</sup>quot;Cash" consists of marketable securities less bank indebtedness

<sup>(</sup>See accompanying notes to consolidated financial statements)

#### **Notes to Consolidated Financial Statements**

December 31, 1988

#### 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 within the framework of the accounting policies summarized below. 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.

#### (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 need for the revision becomes 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) Accrued incentive revenue

Accrued incentive revenue relates to satellite contracts and represents the non-current portion of the present value of cash payments that the company estimates it will receive, net of allowances for performance failures.

#### (c) Research and development costs

The company expenses all research and development expenditures, after deducting investment tax credits and government assistance, as incurred with the exception of certain development costs incurred prior to commencement of or during initial commercial production of new products, which are deferred.

Deferred development costs are amortized in proportion to projected revenue of related products commencing in the year of initial commercial production. Should the company determine that the unamortized balance of deferred costs is in excess of amounts that can reasonably be recovered from the benefits of future sales, such excess will be written off at that time.

#### (d) Inventories

Inventories of raw materials and finished goods are valued at the lower of cost, on a moving average basis, and market value, being replacement cost for raw materials and net realizable value for finished goods, determined as the lesser of replacement cost and net realizable value. Contracts in process are valued at estimated sales value calculated on the percentage of completion basis.

#### (e) Fixed assets

Additions to fixed assets are recorded at cost after deducting investment tax credits and government assistance. Depreciation and amortization are provided on 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 331/3%

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.

#### (f) Foreign exchange

Transactions in foreign currencies are translated into Canadian dollars at the approximate rate prevailing at the time of the transactions. Monetary assets and liabilities in foreign currencies are translated at rates prevailing at the year end. Non-monetary assets and liabilities, and related income statement charges, are translated at historical rates. Foreign exchange gains and losses are included in income for the year, except those which relate to long term monetary items which are deferred and amortized over the term of the related asset or liability.

#### (g) Pension costs and obligations

Current service costs under the company's pension plans are charged to operations as they accrue, based on annual actuarial valuations calculated using the accrued benefit method and management's best estimate assumptions. The valuation of pension fund assets is based on market-related values, which spread unrealized gains and losses over five years.

The excess of the value of pension fund assets over the actuarially-computed present value of accrued pension obligations as at January 1, 1987, which was in excess of amounts included in income in years prior to 1987, and any surpluses or deficits arising since that date are amortized, on a diminishing balance basis, over the expected average remaining service lives of the employee groups covered by the plans.

#### (h) Income taxes

The company and its subsidiary companies follow the practice of providing for income taxes based on income included in the financial statements regardless of when such income is subject to payment of taxes under the tax laws.

# 2. Marketable securities

The company's marketable securities portfolio is carried at the lower of cost and market and consists of the following:

1988			1	ng: 1987		
(\$000s)	Cost	Market	Cost	Marke		
Retractable preferred shares	\$ 3,044	\$ 3,000	\$ 6,046	\$ 6,00		
Canadian government bonds	58,927	59,000	53,867	54,000		
Corporate bonds and other	139	139	3,124	3,124		
	\$62,110	\$62,139	\$63,037	\$63,124		
The preferred shares are retractable at \$3,000,000.						
3. Inventories						
Inventories consist of the following:						
(\$000s)			1988	1987		
Contract costs and related profit margins recognized to date			\$439,657	\$237,792		
Less: related progress billings			394,727	215,475		
			44,930	22,317		
Raw materials, parts and supplies			6,746	5,914		
			858	1,049		
Finished goods			000	1,010		
Customer advance payments in excess of contract costs and related profincluded in current liabilities.	it margins of \$8,753,00	00 (1987 –	\$ 52,534	\$ 29,280		
Customer advance payments in excess of contract costs and related profincluded in current liabilities.  4. Fixed assets Fixed assets consist of the following:	it margins of \$8,753,00	00 (1987 –	<b>\$ 52,534</b> \$9,545,000)	\$ 29,280 are		
Customer advance payments in excess of contract costs and related profincluded in current liabilities.  4. Fixed assets Fixed assets consist of the following: (\$000s)	it margins of \$8,753,00	00 (1987 –	\$ 52,534	\$ 29,280 are		
Customer advance payments in excess of contract costs and related profincluded in current liabilities.  4. Fixed assets Fixed assets consist of the following: (\$000s)	it margins of \$8,753,00	00 (1987 –	<b>\$ 52,534</b> \$9,545,000)	\$ 29,280 are		
Customer advance payments in excess of contract costs and related profincluded in current liabilities.  4. Fixed assets Fixed assets consist of the following: (\$000s)  Cost:	it margins of \$8,753,00	00 (1987 –	\$ <b>52,534</b> \$9,545,000)	\$ 29,280 are 1987 \$ 400		
Customer advance payments in excess of contract costs and related profincluded in current liabilities.  4. Fixed assets Fixed assets consist of the following: (\$000s)  Cost: Land Buildings and leasehold improvements Machinery and equipment	it margins of \$8,753,00	00 (1987 –	\$ <b>52,534</b> \$9,545,000) <b>1988</b> \$ <b>400</b>	\$ 29,280 are		
Customer advance payments in excess of contract costs and related profincluded in current liabilities.  4. Fixed assets Fixed assets consist of the following: (\$000s)  Cost: Land Buildings and leasehold improvements	it margins of \$8,753,00	00 (1987 –	\$ 52,534 \$9,545,000) 1988 \$ 400 9,757	\$ 29,280 are 1987 \$ 400 8,571		
Customer advance payments in excess of contract costs and related profincluded in current liabilities.  4. Fixed assets Fixed assets consist of the following: (\$000s)  Cost: Land Buildings and leasehold improvements Machinery and equipment	it margins of \$8,753,00	00 (1987 –	\$ 52,534 \$9,545,000) 1988 \$ 400 9,757 75,932	\$ 29,280 are 1987 \$ 400 8,571 65,831		
Customer advance payments in excess of contract costs and related profincluded in current liabilities.  4. Fixed assets Fixed assets consist of the following: (\$000s)  Cost: Land Buildings and leasehold improvements Machinery and equipment	it margins of \$8,753,00	00 (1987 –	\$ 52,534 \$9,545,000) 1988 \$ 400 9,757 75,932 2,304	\$ 29,280 are 1987 \$ 400 8,571 65,831 2,304		
Customer advance payments in excess of contract costs and related profincluded in current liabilities.  4. Fixed assets Fixed assets consist of the following: (\$000s)  Cost: Land Buildings and leasehold improvements Machinery and equipment Machinery and equipment under capital leases	it margins of \$8,753,00	00 (1987 –	\$ 52,534 \$9,545,000) 1988 \$ 400 9,757 75,932 2,304 88,393	\$ 29,280 are 1987 \$ 400 8,577 65,833 2,304 77,106		
Customer advance payments in excess of contract costs and related profincluded in current liabilities.  4. Fixed assets Fixed assets consist of the following: (\$000s)  Cost: Land Buildings and leasehold improvements Machinery and equipment Machinery and equipment under capital leases			\$ 52,534 \$9,545,000) 1988 \$ 400 9,757 75,932 2,304 88,393 49,157 \$ 39,236	\$ 29,280 are 1983 \$ 400 8,57 65,83 2,304 77,106 38,36 \$ 38,748		
Customer advance payments in excess of contract costs and related profincluded in current liabilities.  4. Fixed assets Fixed assets consist of the following: (\$000s)  Cost: Land Buildings and leasehold improvements Machinery and equipment Machinery and equipment under capital leases  Less: accumulated depreciation and amortization  5. Long term investment Investment in MacDonald, Dettwiler and Associates Ltd. and Nordonald			\$ 52,534 \$9,545,000) 1988 \$ 400 9,757 75,932 2,304 88,393 49,157 \$ 39,236	\$ 29,280 are  1987 \$ 400 8,577 65,837 2,302 77,106 38,367 \$ 38,745  Dwing: 1987		

**\$ 2,152** \$ 3,278

# 6. Long term debt

any a long tarm dobt consists of the following

(\$000s)	1988		1987
Interest free loan repayable over 10 years starting in 1992	\$ 2,365	\$	_
Capital lease obligations expiring in 1989 and 1990 bearing interest at 11%	487		911
Term loans and other	347		497
	3,199		1,408
Less: amount included in current liabilities	618		574
	¢ 2 E01	ė	024

Long term debt is repayable as follows: (\$000s)	Interest Free Loan	Capital Lease Obligations	Term Loans and Other	Tot	tal
1989	\$ -	\$468	\$150	\$ 6	18
1990	_	19	167	18	86
1991	_	_	30	3	30
1992	100	_	_	10	00
1993 and future years	2,265	_	-	2,26	35
	\$2,365	\$487	\$347	\$3,19	99

#### 7. Share Capital

A summary of changes to issued share capital for the years ended December 31, 1988 and 1987 is as follows:

Subordinate voting				Total
Shares	\$	Shares	\$	\$
10,744,132	63,869	1,077,133	151	64,020
54,316	1,174			1,174
28,000	89			89
4		(240)		
10,826,452	65,132	1,076,893	151	65,283
391,035	5,865			5,865
37,000	196			196
53	_	(2,670)	-	_
11,254,540	71,193	1,074,223	151	71,344
Unlimited		12,000,000		
	Shares 10,744,132 54,316 28,000 4 10,826,452 391,035 37,000 53 11,254,540	Shares \$ 10,744,132 63,869 54,316 1,174 28,000 89 4 10,826,452 65,132 391,035 5,865 37,000 196 53 — 11,254,540 71,193	Shares         \$         Shares           10,744,132         63,869         1,077,133           54,316         1,174         28,000         89           4         (240)           10,826,452         65,132         1,076,893           391,035         5,865         37,000         196           53         —         (2,670)           11,254,540         71,193         1,074,223	Shares         \$         Shares         \$           10,744,132         63,869         1,077,133         151           54,316         1,174         28,000         89           4         (240)           10,826,452         65,132         1,076,893         151           391,035         5,865         37,000         196         (2,670)         —           11,254,540         71,193         1,074,223         151

#### Preferred Shares and Junior Preferred Shares

Such classes of shares may be issued in one or more series with such designations, preferences, rights, privileges, restrictions and conditions attached as may be determined by the directors.

Authorized – 10,000,000 Preferred Shares and 20,000,000 Junior Preferred Shares;

Issued and outstanding - none

# Special Shares

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

- (i) not transferable except in certain limited circumstances;
- (ii) ranked, as to payment of dividends and repayment of capital, junior to all other existing shares of the company;
- (iii) limited as to repayment of capital to the amount paid up thereon;
- (iv) not entitled to dividends except in a year in which dividends of at least \$0.375 have been paid on the subordinate voting shares and then payable subject to prescribed limits;

- (v) entitled to 10 votes per share at a meeting of shareholders;
- (vi) only redeemable on or after June 30, 1991 at the redemption price of \$0.075 per share;
- (vii) purchasable by the company at any time;
- (viii) convertible by the holder 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 purchase newly issued Special Shares in proportion to such shareholders' holdings of Special Shares. On the issue of additional subordinate voting shares (except in certain circumstances) or on the issue of securities 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.

#### Subordinate voting shares

Each subordinate voting share entitles the holder to:

- (i) one vote per share;
- (ii) receive dividends when declared;
- (iii) receive, on dissolution of the company, subject to the prior rights of the holders of Preferred and Junior Preferred Shares but in priority to the rights of the holders of Special Shares, the amount paid up thereon together with any declared and unpaid dividends and, after payment to the holders of Special Shares of the amount paid up on such Special Shares, to receive any declared and unpaid dividends thereon together with the remaining property of the company.

#### Employee stock options

In 1988, the Company granted 35,000 options to officers, 317,500 options were cancelled and reissued, 37,000 options were exercised, and 30,000 options on subordinate voting shares were forfeited on termination of employment.

At December 31, 1988, 489,130 subordinate voting shares were reserved for issuance upon the exercise of options granted to full-time employees, including 439,500 to officers of the company, at prices ranging from \$3.205 to \$24.00 per share and averaging \$16.46 per share. These options may be exercised at various periods to 1998.

#### Employee share purchase plan

In each of 1986 and 1988, the company introduced a share purchase plan to qualified employees. Under each plan a qualified employee was eligible to purchase subordinate voting shares of the company having an aggregate cost to the employee of 7½% (for the 1986 plan) and 10% (for the 1988 plan) of the employee's annualized base earnings. The company provides an interest-free loan to the full amount of the employee's commitment, repayable over three years and secured by the 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  $13\frac{1}{3}$ % of the employee's commitment to be used to purchase additional subordinate voting shares.

Employees have purchased or are committed to purchase a total of 709,200 subordinate voting shares under the 1986 and 1988 plans at \$22.37 and \$14.28 per share, respectively. At December 31, 1988, outstanding loans amounted to \$4,063,000 (1987 – \$1,034,000), of which \$2,201,000 (1987 – \$135,000) is included in loans receivable and \$1,862,000 (1987 – \$899,000) in accounts receivable.

#### Shares required for future issue

At December 31, 1988, a total of 671,600 subordinate voting shares may be required for future issue as follows: 21,484 for conversion of the Special Shares, 489,130 for exercise of stock options and approximately 160,986 for participants in the 1986 and 1988 employee share purchase plans.

#### 8. 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)	1988	1987
Fixed assets	\$ 300	\$ 468
Deferred development costs	900	250
Cost of revenue	1,650	3,375
Research and development costs	850	825
	\$ 3,700	\$ 4,918

#### Effective income tax rate

The company's income tax provision consists of the

(\$000s)	1988		1987
Combined basic Canadian Federal and Provincial and foreign income tax rate	42.3%		48.5%
Income tax expense prior to the following (reductions) increases	\$ 4,260	\$	3,510
<ul> <li>Manufacturing and processing deduction</li> </ul>	(233)		(510)
- All other items, net	(147)	-	200
Income tax expense	\$ 3,880	\$	3,200

#### Loss carry forwards

The company has not recognized the tax benefit of losses of prior years of \$9,000,000 in respect of foreign subsidiaries. Of these loss carry forwards, \$4,900,000 expires in 1999 and \$4,100,000 expires in 2000.

#### 9. Commitments

The future minimum payments under operating leases are as follows:

Year	(\$000s) Annual rental
1989	\$ 3,039
1990	3,354
1991	2,635
1992	2,141
1993	1,674
5 year commitment	\$12,843

At December 31, 1988, the company is committed to sell \$29,660,000 U.S. dollars under forward exchange contracts at an average conversion rate of \$1.2349 Canadian. These contracts mature on various dates from 1989 through 1991.

#### 10. Pension and retirement plans

The company maintains several pension plans covering substantially all of its employees. 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.

Based on the latest actuarial reports prepared as of January 1, 1988 using management's best estimate assumptions, the present value of accrued pension obligations as at December 31, 1988 was \$39,353,000 (1987 - \$35,602,000) and the market value of the fund assets available to discharge these obligations was \$53,931,000 (1987 - \$50,768,000). The amount of pension surplus as at December 31, 1986 which was in excess of amounts included in income in years prior to 1987 and any surpluses or deficits arising since that date are being amortized (on a diminishing balance basis at a rate of 25% per annum) over eight years, which approximates the expected average remaining service lives of the employee groups covered by the plans. All past service liabilities were funded and recorded in the accounts as at December 31, 1988 and 1987 with the exception of the liability related to certain retirement plans for certain officers which is estimated to be \$1,322,000 at December 31, 1988 (1987 - \$1,512,000). This amount will be amortized over the estimated number of years to normal retirement.

After amortization of the pension surplus, the net amount credited to income in respect of all pension and retirement plans was \$310,000 (1987 – \$1,308,000).

#### 11. Government assistance

On February 14, 1986 the Federal Government executed a Memorandum of Understanding (M.O.U.) under which the Government will share, to a maximum of \$130 million or 43.6% of the total investment by the company, the costs of research and development and capital expenditures with the company over the period 1986 to 1991.

Government assistance received and receivable from the Federal Government related to research and development activities and capital expenditures in 1988 totalled \$13,728,000 (1987 – \$20,227,000). This assistance normally takes the form of grants which may be repayable in the form of royalties based on future sales levels related to the projects funded, or the company's ability to meet certain investment targets as specified in the agreements. At December 31, 1988 no provision for repayment has been recorded with respect to contributions received and receivable. Such amounts, if any, that may be repayable will be accounted for in the period in which conditions arise that will cause repayment. Government assistance with determined repayment requirements is recorded as a liability when received.

Government assistance received and receivable at year-end has been applied to reduce the cost of the related expenditures and assets or recorded as a liability as follows:

(\$000s)	1988			1987		
Fixed assets	\$	136	\$	659		
Research and development costs	<b>11,227</b> 1			19,568		
Long term debt		2,365		_		
	\$	13,728	\$	20,227		

# 12. Statement of changes in financial position

Items not affecting cash

The components of net income (loss) which did not affect cash consist of the following:

(\$000s)		1988	1987
Depreciation (including \$730 included in provision for restructure	ing		
costs in 1987)	\$	11,260	\$ 9,327
Amortization of deferred			
development costs		1,046	628
Reduction in deferred development			
costs		_	3,700
Deferred income taxes		340	(3,075)
Amortization and write-off of			
goodwill		· -	3,905
Accrued incentive revenue		(3,810)	(4,035)
Deferred pension costs		(2,670)	(3,223)
Items not affecting cash	\$	6,166	\$ 7,227

Net (increase) decrease in cash invested in working capital related to operations

The net (increase) decrease in cash invested in working capital related to operations results from the following (increases) decreases in working capital components:

(\$000s)	1988	1987
Accounts receivable	\$ 2,309	\$ 12,265
Income tax recoverable	1,836	3,179
Inventories	(23, 254)	(1,639)
Prepaid expenses and other	(510)	1,292
Accounts payable and accrued		
charges	11,537	15,036
Customer advance payments	(792)	(10,336)
Net (increase) decrease in cash invested in working capital		
related to operations	\$ (8,874)	\$ 19,797

#### 13. Unusual item

As a result of management's assessment of the recoverability of the company's investment in defence product development a reduction of \$3,700,000 in the carrying value of deferred development costs was recorded at December 31, 1987.

#### 14. Provision for restructuring costs

As at December 31, 1987, the company made provisions, which had no effect on cash, totalling \$9,800,000 (net of income taxes) for the planned restructuring of its Canadian and U.S. Communications Group operations and a refocusing of their product, manufacturing and market strategies. Charges to this provision to December 31, 1988 were \$6,000,000, net of income taxes.

#### 15. Restatement of prior period financial statements

The balance of retained earnings at January 1, 1988 has been reduced by \$1,611,000, representing the correction of errors in translating foreign subsidiary financial statements and intercompany accounts. Of the \$1,611,000, \$1,339,000 is applicable to 1987 and has been charged to income for that year. The remaining \$272,000 is applicable to years prior to January 1, 1987 and the balance of retained earnings at that date has been reduced accordingly. Earnings per share before extraordinary item for the year ended December 31, 1987 has been reduced by 12 cents. Net loss per share for the same period has been increased by 12 cents.

#### 16. 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.

Aviation and Ventures Sector			Systems	s Sector		Eliminatio	ons	Consolidated			
(\$000s)		1988	1987	1988	1987	<b>1988</b> 198		1987	1988	1987	
External revenues Intersegment revenues		42,076 3,476	\$ 42,088 4,382	\$227,891 2	\$194,033 27	\$	(3,478) \$	(4,409)	\$269,967 —	\$236,121 —	
Total revenue	\$	45,552	\$ 46,470	\$227,893	\$194,060	\$	(3,478) \$	(4,409)	\$269,967	\$236,121	
Segment operating profit (loss)	\$	(598)	\$ 1,998	\$ 21,069	\$ 18,034	\$	(734) \$	(1,002)	\$ 19,737	\$ 19,030	
General corporate expenses									(10,369)	(9,336)	
Interest on long term debt									(139)		
Other income, net									840	1,482 (3,700)	
Unusual item Income tax expense									(3,880)		
Provision for restructuring costs									_	(9,800)	
Net income (loss)						*			\$ 6,189	\$ (5,763)	
Identifiable assets Corporate assets	\$	29,134	\$ 42,559	\$210,021	\$169,324				\$239,155 17,163	\$211,883 16,044	
Total assets									\$256,318	\$227,927	
Capital expenditures	\$	1,196	\$ 1,315	\$ 11,046	\$ 15,643						
Depreciation and amortization	\$	1,750	\$ 1,883	\$ 9,479	\$ 6,230						

- · The company operates principally in Canada.
- The company's revenues from export markets were approximately \$109,400,000 in 1988 (1987 \$108,400,000).
- 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.

Aviation and Ventures Sector includes: (i) gears and transmission systems and equipment for gas turbine engines, fixed and rotary wing aircraft and robotic applications; (ii) repair and overhaul of a wide range of commercial and military aircraft instrumentation and mechanical components and helicopter maintenance.

Systems Sector 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.

The 1987 comparative amounts have been reclassified to conform with the 1988 presentation.

# **Ten-Year Review**

(dollars in thousands, except per share figures)	1988	1987	1986	1985	1984	1983	1982	1981	1980	1979
Earnings (loss) per subordinate ve	oting share									
Basic										
- income (loss) from										
continuing operations					\$ 1.88	\$ 1.73	\$ 1.34	\$ 0.44	\$ (0.17)	
- income before										
extraordinary item (3)		0.38			1.73					
- net income (loss) (3)	\$ 0.56	(0.53)	0.39	1.41	1.26	1.42	1.43	0.37	(0.28)	0.31
Fully diluted										
- income from										
continuing operations					1.65	1.43	1.06	0.40*	* *	
- income before										
extraordinary item (3)		0.38			1.52					
- net income (loss) (3)	\$ 0.56	(0.53)	0.39	1.33	1.15	1.20	1.12	0.34*	**	0.28
Dividends per	,									
Subordinate voting share	\$ 0.28	0.36	0.46	0.46	0.40	0.35	0.20		0.15	0.15
Preferred share							0.54	1.08	1.08	1.08
Deferred share										0.05
Shareholders' equity per										
subordinate voting share										
outstanding at year end (3)	\$ 8.79	8.29	9.14	8.16	6.45	5.33	3.85	2.58	2.20	2.28
Revenues (1)	\$269,967	236,121	191,018	223,278	190,031	209,321	169,121	113,101	120,986	108,813
Income (loss) from	\$203,307	230,121	131,010	223,270	130,031	203,321	103,121	113,101	120,300	100,010
					15,916	12,709	8,049	2,554	(375)	
continuing operations Income before					15,510	12,709	0,049	2,554	(3/3)	
		4,037			14,597					
extraordinary item (3) Net income (loss) (3)	\$ 6,189	(5,763)	4,122	12.070		10 422	0.500	2 167	(077)	1 605
	\$ 6,189	(5,763)	4,122	13,070	10,661	10,423	8,580	2,167	(877)	1,605
Capital expenditures (net of										
government grants and	A 11 001	17 400	0.207	0.000	10.700	4 700	0.505	1 070		
tax credits) (2)	\$ 11,981	17,499	9,397	8,660	13,738	4,788	2,525	1,678	4,155	4,567
Long term debt (including		4 400	0.440	20.700	04.004					02000
current portion) (2)	\$ 3,199	1,408	2,418	22,786	31,381	29,796	8,256	12,198	7,000	945
Shareholders' equity (3)	\$ 99,041	89,916	98,310	79,521	56,715	42,567	25,635	17,463	15,645	14,730
Working capital (2) and (3)	\$ 27,844	30,582	48,203	58,561	54,662	54,835	17,096	11,758	3,227	6,089
Ratio of current assets to										
current liabilities (2) and (3)	1.2	1.2	1.4	1.9	2.1	2.1	1.2	1.3	1.1	1.2
Number of employees (2)	2,107	2,122	2,089	2,221	2,172	2,041	1,902	1,895	2,100	1,900
Number of shareholders				100	9		že.			.,
Subordinate voting	4,362	4,392	4,459	4,590	4,452	3,489	2,800	2,930	2,970	2,690
										_,

<sup>\*</sup> Does not include exercise of warrants which would be anti-dilutive.

<sup>\*\*</sup> Fully diluted not shown as effect would decrease loss per share.

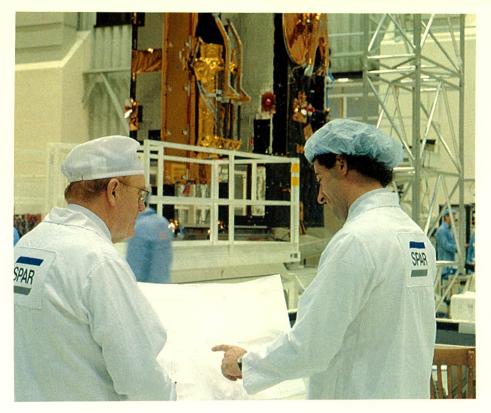
<sup>(1)</sup> Amounts reported are for continuing operations only. Years prior to 1984 have been restated to exclude discontinued operations.

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

<sup>(3)</sup> The 1987 and 1986 amounts have been restated to reflect the prior period adjustment recorded in 1988 (note 15).

# **Review of Operations**

# SPAR Spar Aerospace Limited



Spar Aerospace Limited is a Canadian shareholder-owned public company engaged in the design, development, manufacture and servicing of systems and products for the space, remote manipulation, communications, defence electro-optics and aviation services markets. The company employs some 2,000 people including about 600 engineers and technicians – one of the largest technological groups in the private sector in Canada. Since its inception in 1968, Spar has gained international recognition as one of Canada's leading advanced technology companies.

#### Space

The company is the only manufacturer of satellites in Canada and a major supplier of satellite subsystems for communications and surveillance markets throughout the world. Spar and its predecessor companies contributed to the design and manufacture of more than 60 satellites including the fabrication of structures and payloads for the Alouette, ISIS, Hermes, SBS, Palapa B, Westar IV, G-Star, Satcom, TDRSS, Brasilsat, Olympus and the ANIK series of satellites. As prime contractor for the Mobile Servicing System for NASA's International Space Station Freedom, Spar has been responsible for engaging Canadian companies from coast to coast in support of this program.

Last year, Spar consolidated its satellite operations and earth-based communications systems to provide customers with a complete space communications capability. The objective of the new Satellite and Communications Systems Division (S&CSD) is to serve users' needs in a comprehensive manner, rather than on an individual equipment basis. S&CSD's principal facility with some 700 employees is at Ste.

Anne de Bellevue in Quebec. It is complemented by COMTEL's operations at Santa Maria, California, and a team at the Department of Communications' David Florida Laboratory outside

Ottawa, where complete satellites are integrated and tested.

Anik E, Telesat Canada's next generation of communications satellite to serve North American needs, is entering the assembly phase. Scheduled for launch in 1990, this \$200 million program calls for two satellites. They will be the most powerful and versatile in commercial service over North America, offering both Ku and C-Band capability. Due to S&CSD designed components, the weight has been reduced, giving the satellites a fuel capacity for a 14-year lifespan. This exceeds the 8-10 year lifespan of Aniks C and D which Anik E replaces.

At the same time work continues at the David Florida Lab in the integration and testing of the Olympus, the largest European communications satellite to date. Spar designed the solar arrays and supplied portions of the transponders for this satellite, a prime contract of British Aerospace. Launch is scheduled for mid-1989.

Spar is undertaking the system design and preliminary hardware definition of the Mobile Satellite (MSAT), which will serve users in remote locations. Negotiations continue for a cooperative North American satellite

communications system. The recently released plans for interim service using the International Maritime Satellite system (Inmarsat) have added impetus to the program.

In addition, manufacturing has begun on transponders for follow-on production of the Department of National Defence's Search and Rescue Satellite (Sarsat). Flight 7 is to be delivered in August 1989, for integration into the Tiros N spacecraft. Sarsat is an international cooperative project that has been credited with saving more than 1,000 lives by identifying the location and transmitting distress signals over great distances.

In 1989 Spar is optimistic that it will be awarded the Radarsat Program. Radarsat will have a remote sensing space-based capability that will develop a unique data base on Canada's forest, agriculture and mineral resources as well as monitor ocean traffic. Last year Spar completed work on the data retrieval subsystem for the European Space Agency's earth remote sensing satellite (ERS-1), scheduled for launch in 1990.

In 1988, Alcatel Espace of France awarded Spar a contract for telecommunications payload equipment – antennas and channel amplifiers – for the French Telecom II program. This program, valued at \$15 million, represents Spar's first breakthrough into the highly competitive European commercial satellite market.

Spar was successful in winning a competitive follow-on contract from

TRW to design and manufacture payload equipment for the Tracking and Data Relay Satellite System (TDRSS). The second TDRSS was launched last year on the 26th Space Shuttle flight. The solid state power amplifiers and low noise amplifiers of TDRSS use a new technology developed by Spar. The company also anticipates a contract in 1989 from TRW to provide both the solid state power amplifiers and mechanism control electronics for the Orbital Maneuvering Vehicle (OMV), which will be used to service high altitude satellites once the International Space Station is in operation.

Last year Spar received its fourth study contract from Canada's Department of National Defence for research and development leading to a functional satellite communications model in the extremely high frequency (EHF) range. Based on the results of this research and development, the government plans to test and demonstrate the concept on the ground in the 1990's.

In 1988 the Intelsat satellite earth station in Zambia was dedicated. This was a Spar project undertaken with the Canadian International Development Agency to provide communications systems to countries in southern Africa. Spar also completed the installation of a similar earth station for Liberia. COMTEL continues its work on the Time Division Multiple Access (TDMA) network in Indonesia designed to expand the capacity of the existing earth stations and satellite transponders. Last year, 10 TDMA units were completed and work

is underway on an additional 16 stations.

Elsewhere, orders are in hand for a three-node TDMA pilot system and six transportable satellite earth stations for China. A Spar TDMA system was ordered by the Italian Railways, the first sale of this new product in the European market. Spar also delivered to Teleglobe Canada a Ku-band earth station and will do the engineering and integration of a station to assist Teleglobe's linkup with the Inmarsat network.

#### **Remote Manipulation**

Last year Spar was awarded a \$31 million contract by the Canadian government to complete the preliminary design of the Mobile Servicing System, Canada's contribution to NASA's International Space Station. Over the next decade this project, which also involves member nations of the European Space Agency and Japan, will engage engineering teams in the design and construction of a space structure (ultimately the size of three football fields) to provide a permanent base for a human presence 300 km above the earth.

Beginning in the mid-1990's, the Mobile Servicing System will play a significant role in the construction of the Space Station and will subsequently be used for servicing and maintenance work. As prime contractor to the National Research Council of Canada, Spar will be supported by a team that includes such companies as the IMP Group and Prior Data Sciences in Halifax, CAE Electronics in Montreal, Canadian Astronautics Limited in Ottawa,

SED Systems Inc. in Saskatoon and MacDonald, Dettwiler and Associates in Vancouver.

In addition to this major program, Spar's Remote Manipulator Systems Division is under contract to provide continuing program support to NASA for the Shuttle Remote Manipulator System. Work is proceeding under contract to TRW on the docking system for NASA's Orbital Maneuvering Vehicle. In June 1988. Spar was selected to provide a remote maintenance capability inside the vacuum vessel used in the Compact Ignition Tokamak at the Princeton University Plasma Physics Laboratory in New Jersey. Spar is teamed in this effort with Ebasco Services Inc., which was selected by Princeton to build the unit. The Tokamak will serve as an advanced research facility to examine ways to generate power from nuclear fusion.

#### **Defence**

Work continues on the first two units of the AN/SAR 8, an infra-red scanning system for the US and Canadian Navies that represents the largest contract ever awarded under the US-Canadian Defence Sharing Agreement. There is increasing awareness within the US and NATO navies of the need for this system which could eventually lead to major production orders for Spar.

In 1988 Spar's Defence Systems
Division in Kanata won a \$40 million contract to provide the "Tiger Eye" long-range night observation device (NODLR) to the Canadian forces. This portable device translates differences in temperature at night or in fog into images on a television-like screen. A total of 233



systems were purchased and a follow-on order for additional units is expected. Work advances on the electro-optical devices for the Air Defence Anti-Tank System (ADATSTM) for the Canadian Forces under contract to Martin Marietta. In November 1988, Martin Marietta Corportion authorized long-lead procurements for the supply of 47 Forward Looking Infrared (FLIR) systems for the US and other International Air Defence Anti-Tank Systems (ADATS™) programs. These contracts place Spar in a good position to capitalize on its many years' investment in research and development in electro-optical technology.

#### **Aviation Services**

Spar is an industry leader in the production of high precision aerospace gears and transmissions. At its Toronto plant, lightweight, high-speed, hightorque power transmission systems and equipment for gas turbine engines and fixed and rotary wing aircraft are manufactured and assembled. Spar also repairs and overhauls a wide range of aircraft and helicopter components and sells aviation products and accessories.

#### Links to the Academic Community

Spar supported proposals to the federal government's Centres of Excellence programs, ranging from robotics to aerospace and materials sciences that involve 25 Canadian universities and the efforts of more than 200 researchers. In addition, as in past years, awards of \$1,500 were made to top engineering students selected by the faculties at 17 universities from coast to coast, with a \$500 unrestricted grant to each department of engineering. They represent a living memorial to the late Dr. John H. Chapman, the father of the Canadian space program.

# **Spar Locations**

#### **Corporate Office**

5090 Explorer Drive Suite 900 Mississauga, Ontario

L4W 4X6

Telephone: (416) 629-7727 069-60108

Telex:

(416) 629-0854 Fax:

#### **Government Relations** Office

222 Queen Street Suite 402 Ottawa, Ontario K1P 5V9

Fax:

Telephone: (613) 563-0230

(613) 563-4284

#### **Aviation Services Division**

825 Caledonia Road Toronto, Ontario M6B 3X8

Telephone: (416) 781-1571 065-24240 Telex:

Fax:

(416) 781-2648

1190 McTavish Road, N.E. Calgary, Alberta T2E 7G6

# **Defence Systems Division**

1235 Ormont Drive Weston, Ontario M9L 2W6

Telephone: (416) 746-7252

Telex:

065-27360

Fax:

(416) 746-0181

P.O. Box 13050 Junction 17 - 17B Kanata, Ontario K2K 1X3

Telephone: (613) 592-3430

Telex:

053-4714

Fax:

(613) 592-3430

#### Gears and Transmission Division

825 Caledonia Road Toronto, Ontario M6B 3X8

Telephone: (416) 781-1571

Telex:

065-24240

Fax:

(416) 781-2648

# Remote Manipulator Systems Division

1700 Ormont Drive Weston, Ontario M9L 2W7

Telephone: (416) 745-9680

Telex:

065-27360

Fax:

(416) 745-4172

# **Satellite and Communications** Systems Division

21025 Trans Canada

Highway

Ste Anne de Bellevue

Quebec H9X 3R2 Telephone: (514) 457-2150

Telex:

05-822792

Fax:

(514) 457-2724

# Wholly-Owned Subsidiaries

#### Spar Aerospace Holdings (U.S.) Inc.

1001 Jefferson St. Suite 550

Wilmington, Delaware

19801 U.S.A.

Telephone: (302) 594-4413

# Astro Aerospace Corporation

6384 Via Real Carpinteria, California U.S.A. 93013-2993 Telephone: (805) 684-6641

Fax:

(805) 684-3372

# **Commercial Telecommunications** Corporation (COMTEL)

2811 Airpark Drive Santa Maria, California

U.S.A. 93455

Telephone: (805) 928-2581

Telex:

467505

Fax:

(805) 925-2540



# **Corporate Information**

#### **Directors**

David R. Beatty

President

Weston Foods

George Weston Limited

(Elected director 1983)

Larry D. Clarke\*

Chairman of the Board and Chief Executive Officer

Spar Aerospace Limited

(Elected director 1967)

Camille A. Dagenais

Director

The SNC Group

(Elected director 1980)

Allan A. Hodgson†

Vice President and

Chief Financial Officer

Alcan Aluminium Limited

(Elected director 1987)

David L. Johnston†

Principal & Vice Chancellor

and Professor of Law

McGill University

(Elected director 1988)

Philip A. Lapp\*

President

Philip A. Lapp Limited

(Elected director 1967)

Roger J. Maggs

Vice President, Personnel

Alcan Aluminium Limited

and President and General Manager

Alcan Fiduciaries Limited

(Elected director 1988)

Earl H. Orser†\*

President and

Chief Executive Officer

London Life Insurance Company

(Elected director 1978)

David A.B. Steel\*

Associate Counsel

Holden, Murdoch & Finlay

(Elected director 1967)

†Members of the

**Audit Committee** 

\*Members of the

**Executive Committee** 

#### Barbara L. Steele†

Company Director

(Elected director 1980)

#### Ihor Suchoversky

Vice President

Research & Technology

Alcan Aluminium Limited (Elected director 1986)

#### **Directors Emeritus**

# David S. Beatty

(Elected director 1969) (Appointed Director

Emeritus 1985)

Roland B. Dodwell

(Elected director 1967) (Appointed Director

Emeritus 1986)

# William H. Jackson

(Elected director 1967)

(Appointed Director

Emeritus 1985)

#### **Officers**

Larry D. Clarke

Chairman of the Board and

Chief Executive Officer

Earl H. Orser

Vice Chairman of the Board

Anthony L. Anderson

**Executive Vice President** 

John D. MacNaughton

**Executive Vice President** 

E. Peter Birch

Vice President, Administration

Gil A. Branchflower Vice President, Operations

Systems Sector

Peter Charlton

Vice President, Development

David C. Cleland

Vice President

Charles J. Dannemann

Vice President and

General Manager

Remote Manipulator Systems Division

Frank B. Driscoll

Vice President and

General Manager

Defence Systems Division

Gord A. Epp

Vice President and

General Manager

Aviation Services Division

William R. Fitzgerald

Vice President and

General Manager Satellite and Communications

Systems Division

Eric R. Grimshaw

Vice President

#### Bryan H. Held

Vice President and

Corporate Controller

Thomas G. Mathers

Vice President, Human Resources

# J. Ron McCullough

Vice President, Corporate Planning

Ken J. Perry

Vice President and

General Manager

Gears & Transmissions

Division

Sheldon Polansky

Vice President

Legal Counsel and Secretary

Karsten J. Westphal

Vice President

International Operations

# Auditors

Clarkson Gordon

**Transfer Agents** 

Montreal Trust Company of

Canada

Listed

Toronto Stock Exchange

Montreal Exchange (Trading Symbol: SPZ)

Vous pouvez vous procurer cette brochure en français.

