

PENSION PLAN FOR THE CANADIAN FORCES

ACTUARIAL REPORT

(including cost certificate)

AS AT DECEMBER 31, 1987

Ottawa, Canada K1A 0H2

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June 21, 1989

The Honourable Robert de Cotret President of the Treasury Board Ottawa

sir:

Pursuant to section 6 of the Public Pensions Reporting Act, I have the honour to transmit herewith my valuation report on an actuarial review of the pension plan established under the Canadian Forces Superannuation Act, as at December 31, 1987. The report includes a cost certificate required in accordance with section 5 of the Public Pensions Reporting Act.

Subsection 9(1) of the Public Pensions Reporting Act requires a report filed with the Minister while Parliament is sitting to be laid before Parliament within thirty sitting days of its being filed.

If Parliament is not then sitting, the Act requires that the report be laid before Parliament on any of the first thirty days thereafter that Parliament is sitting.

Respectfully submitted,

CW. Poznanski Chief Actuary

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PUBLIC PENSIONS REPORTING ACT

Report on the Actuarial Review of the pension plan established under the Canadian Forces Superannuation Act
as at December 31, 1987

I. Introduction

In accordance with paragraphs 3(1)(a) and 3(3)(a) of the Public Pensions Reporting Act (PPRA), we have made an actuarial review of the pension plan established under the Canadian Forces Superannuation Act (CFSA) as at December 31, 1987. The last actuarial review was made as at December 31, 1983.

For purposes of this report, as required by subsection 3(2) of the PPRA, the plan is deemed to include the related benefits (indexing) payable under the Supplementary Retirement Benefits Act (SRBA) and the related assets of the Supplementary Retirement Benefits Account.

The cost certificate required by section 5 of the PPRA is included as Section II of this report.

II. Cost Certificate

(Pursuant to section 5 of the Public Pensions Reporting Act)

The normal actuarial costs, i.e. the contributions required to provide all benefits in respect of future service, are estimated to be the following percentages of remuneration for the three years following the review date:

			Total
	Payable by	Effective Cost	Normal
<u>Year</u>	Contributors*	to Government	Cost
	(%)	(%).	(%)
1988	5.99	13.31	19.30
1989	5.93	14.50	20.43
1990	5.87	15.31	21.18

The unrecorded (unfunded) actuarial liability as at December 31, 1987, is estimated to be \$613.0 million. This is considered to be a realistic assessment. However, it is important to recognize the nature of the underlying assumptions. The dynamic economic assumptions that have been used make allowance for the high rates of interest on existing notional investments and contain only a relatively small margin for increases in wage levels above those that have been experienced in the last few years.

The recurrence of relatively higher levels of increases in salaries and prices resulting in a return to more traditional levels of real interest rates could produce substantial new estimation adjustments (unfunded actuarial liabilities). Some protection against this is provided by the margin in the assumed interest rates; if it were removed, total liabilities would be reduced by 11% and the total normal cost by 16%.

The actuarial method and assumptions are described in Sections III and IV. The assumptions include rates of interest, increases in salary levels and increases in the Consumer Price Index which reach ultimate levels of 6%, 5% and 3.5%, respectively. If these rates had been assumed to apply, beginning at the date of valuation, the normal costs would have appeared as follows:

Payable by	Effective Cost	Total Normal
		<u> Cost</u> (%)
5.99	27.11	33.10
5.93	27.29	33.22
5.87	27.45	33.32
	Contributors (%) 5.99 5.93	Contributors to Government (%) (%) 5.99 27.11 5.93 27.29

^{*} Contributions payable by members consist of (a) 1% of salary plus (b) 6.5% of salary less Canada Pension Plan (CPP) contributions during the first 35 years of pensionable service. These contribution rates were converted into an equivalent uniform percentage applicable to salaries paid until completion of 35 years of pensionable service for contributors on December 31, 1987, but allowing for increases in the CPP contribution rate effective January 1, 1988 and each year thereafter.

The foregoing table assumes a long-term real interest rate of about 2.4% which may be regarded as reasonably consistent with investment in long-term government bonds. If the notional investments were more in line with private sector pension funds, it would be reasonable to use an assumed interest rate one percentage point higher, in which case the normal costs would appear as follows:

<u>Year</u>	Payable by <u>Contributors</u> (%)	Effective Cost to Government (%)	Total Normal Cost (%)
1988	5.99	18.95	24.94
1989	5.93	19.10	25.03
1990	5.87	19.24	25.11

III. Actuarial Method

The actuarial method used is known as the Unit Credit or Accrued Benefit Method. It contemplates contributions in any year sufficient to fund projected benefits in respect of service during that year. This method is the one included in the "Accounting Recommendations - April 1986" in respect of "Pension Costs and Obligations" as well as "Public Sector Accounting Statement 5 - September 1988" issued by the Canadian Institute of Chartered Accountants.

The Normal Actuarial Cost (current service contributions) may be affected by changes in the underlying economic and demographic assumptions as well as by changes in the distribution of contributors by, for example, age, sex and salary.

The actuarial liability is the actuarial present value of projected benefits assumed to have accrued in respect of service to the effective date of the valuation. The actuarial liability may be affected by net gains or losses from experience as well as by changes in assumptions.

IV. Actuarial Assumptions

A. Economic Assumptions

After consultation with the Department of Finance and the Treasury Board, the Chief Actuary adopted the following assumptions which take into account recent developments.

	Rates of Interest Assumed			Assumed	Assumed	
***	on New	Projected**	Assumed	Increases	Salary	Rate of
<u>Year</u>	Money %	Fund Yield	Fund Yield %	in GPI	Increases %	Indexing %
1988*	Diverse	11.1	11.1	4.1	3.0	4.3
1989*	10.9	11.1	10.1	4.8	4.4	4.1
1990	10.2	11.0	10.0	4.4	3.3	4.6
1991	9.4	11.0	10.0	5.7	3.2	4.5
1992	8.5	10.9	9.9	3.0	3.0	5.4
1993	7.9	10.8	9.8	2.7	3.0	3.7
1994	7.3	10.6	9.6	2.5	3.0	2.8
1995	6.8	10.4	9.4	3.0	4.0	2.6
1996	6.4	10.1	9.1	3.5	5.0	2.9
1997	6.1	9.9	8.9	3.5	5.0	3.4
1998	6.0	9.6	8.6	3.5	5.0	3.5
1999	6.0	9.4	8.4	3.5	5.0	3.5
2000	6.0	9.1	8.1	3.5	5.0	3.5
2001	6.0	8.8	7.8	3.5	5.0	3.5
2002	6.0	8.4	7.4	3.5	5.0	3.5
2003	6.0	8.1	7.1	3.5	5.0	3.5
2004	6.0	7.9	6.9	3.5	5.0	3.5
2005	6.0	7.7	6.7	3.5	5.0	3.5
2006	6.0	7.4	6.4	3.5	5.0	3.5
2007	6.0	7.3	6.3	3.5	5.0	3.5
2008	6.0	7.1	6.1	3.5	5.0	3.5
2009	6.0	6.9	6.0	3.5	5.0	3.5
2010	6.0	6.5	6.0	3.5	5.0	3.5
2011	6.0	6.4	6.0	3.5	5.0	3.5
2012	6.0	6.3	6.0	3.5	5.0	3.5
2013	6.0	6.2	6.0	3.5	5.0	3.5
2014	6.0	6.1	6.0	3.5	5.0	3.5
2015	6.0	6.0	6.0	3.5	5.0	3.5
2016	6.0	6.0	6.0	3.5	5.0	3.5
2017	6.0	6.0	6.0	3.5	5.0	3.5
2018	6.0	6.0	6.0	3.5	5.0	3.5
				- * -		

^{*} See footnote# on page 5.

^{**} See footnote## on page 5

B. Promotional salary increases

Analysis of the data indicated that average promotional increases were substantially lower than they had appeared in the preceding study, particularly in the early years of service. New factors were developed giving 50% credibility to the 1984-87 experience. The new rates are shown in Appendix 3.

C. Rates of retirement with return of contributions or cash termination allowance for reasons other than disability (generally called withdrawal rates)

The 1984-87 experience indicated a continuation of the trend to lower rates at relatively younger ages and, except for female officers, to somewhat higher rates at relatively older ages. It was considered appropriate to use rates, essentially reflecting the 1984-87 experience; they are shown in Appendix 4.

D. Rates of retirement with entitlement to an annuity for reasons other than disability

As described in Appendix 2, retirement with entitlement to an immediate or deferred annuity may occur at various points prior to "retirement ages"*. For purposes of valuation, immediate annuities are assumed for contributors retiring with 10 or more years of pensionable service above age 39 or with 20 years of service below age 40 and deferred annuities are assumed for other retirements with at least ten years of pensionable service.

^{*} See Note 6 in Appendix 2.

[#] Assumptions for 1988 and the rate of indexing for 1989 are based on actual experience. The interest rate on new money in 1988 varied between 9.9% and 10.7%.

^{##} The projected fund yield is based on the assumption that the assets of the plan are increased to equal liabilities on January 1, 1990 and that no contributions are received after 1989.

Actual retirements among male contributors during the 1984-87 period were higher than expected for officers below age 45 and above age 55 and lower for age 46 to 55 as well as for other ranks generally. New rates were developed reflecting the 1984-87 experience but giving only 50% credibility to that experience in the case of other ranks.

The data on female members continue to be too sparse to develop age-specific rates. However, the 1984-87 experience indicated that it continues to be appropriate to use rates developed for the corresponding category of male contributors. The rates are shown in Appendix 5.

E. Rates of retirement with entitlement to an annuity, a cash termination allowance or a return of contributions because of disability

The disability rates experienced during the 1984-87 period were lower than expected for all categories of contributors, except male other ranks below age 26 and above age 49. New rates were developed reflecting the 1984-87 experience. However, in the case of male officers and all female contributors, it was considered appropriate to give only 50% credibility to the 1984-87 experience. The rates used appear in Appendix 6.

F. Mortality of active contributors

The 1984-87 experience indicated somewhat lower mortality than assumed in the 1983 valuation. New rates were constructed for male officers and for male other ranks which reflect the level of mortality at the valuation date. For female contributors it was considered appropriate to use the Life Table 1980-82, Canada as published by Statistics Canada, but with an age set-back of seven years. All rates are shown in Appendix 7.

G. Mortality of contributors entitled to annuities who were retired for reasons other than disability

The mortality rates adopted for the preceding valuation could have been retained, except in the case of male other ranks where the margin for future improvement seemed to be rapidly disappearing. However, for purposes of this valuation it was decided to replace the static mortality tables including margins by tables reflecting current mortality tables combined with projection scales.

Accordingly, tables of rates were constructed for males based on the 1984-87 experience which were assumed to represent mortality in 1985. Mortality for females in 1985 is assumed to be represented by the 1983 GAM Table with a set-back in age of one year.

The rates are shown in Appendix 8 and the projection factors in Appendix 10.

H. Mortality of contributors entitled to annuities who were retired because of disability

The approach was similar to the one described in (G) above. The mortality rates assumed applicable for 1985 were percentages of the rates according to the Life Tables 1980-82, Canada: 110% for retired officers and 140% for others.

Sample mortality rates are shown in Appendix 9 and projection factors in Appendix 10.

I. Mortality and Remarriage of Surviving Spouses

With regard to mortality the same approach was adopted as for retired contributors. For widows, rates based on the 1981-87 experience were assumed applicable to 1984. For widowers, the Life Table 1980-82, Canada with an age set-back of three years was assumed applicable to 1984. These rates were projected in the same fashion as those for retired contributors.

The remarriage rates used in the preceding valuation were retained. For widows, they are equivalent to the select and ultimate remarriage rates derived from the 1940-57 experience of widows granted pensions under the Pension Act and previous government administrative orders from August 4, 1914 to December 31, 1957. For widowers, they are the rates used for purposes of the Canada Pension Plan.

Sample mortality and remarriage rates are shown in Appendix 11.

J. Children

Allowances to children are payable up to age 18 in all circumstances and from age 18 up to age 25 if the child is unmarried and attending a school or university. As the mortality rates for children are quite low, it was considered suitable to ignore mortality amongst these annuitants.

For purposes of valuing allowances in payment for students, the probabilities of students at various ages remaining eligible for allowance at the end of one year derived from the 1976-80 experience under the CFSA were used again. The probabilities are shown in Appendix 12.

K. Proportions of contributors (including annuitants) married at death and Average ages of spouses corresponding to ages of contributors at death

The 1984-87 experience indicated that it would be appropriate to retain the proportions adopted for the preceding valuation.

With regard to the average ages of widows, the assumptions developed for the 1983 valuation were adjusted slightly to narrow the age differences a little for ages of contributors and annuitants below 80 and to widen them for higher ages. For the average ages of widowers corresponding to ages of female contributors and annuitants at death, the assumptions developed for the pension plan for the Public Service of Canada were used.

The proportions and average ages used in the valuation are shown in Appendix 12.

V. <u>Data and Membership Statistics</u>

The data for this valuation were obtained from data tapes supplied by the Department of National Defence. The following tables derived from those tapes show pertinent statistics concerning contributors to the Account (members and former members of the regular force*) and survivors eligible for allowances during the intervaluation period from January 1, 1984 to December 31, 1987.

^{*} Regular force means the regular force of the Canadian Forces and includes

⁽a) the forces known before February 1, 1968 as the regular forces of the Canadian Forces, and

⁽b) the forces known before February 1, 1968 as the Royal Canadian Navy, the Canadian Army Active Force, the Permanent Active Militia, the Permanent Militia Corps, the permanent staff of the Militia, the Royal Canadian Air Force (Regular) and the permanent Active Air Force.

A. Members of the Regular Force

Group	Contri- butors* 84-01-01	New** entrants 1984-1987	Type of		from 1984 Type of To Disabled	erminatio	n	Contributors 87-12-31
<u>Males</u>								
Officers	16,021	4,352	Annuity Lump Sum	50 <u>18</u> 68	20 <u>41</u> 61	2,020 1,915 3,935	2,090 1,974 4,064	16,309
Other Ranks		,,,,,,	Annuity Lump Sum	189 131	404 <u>594</u>	6,014 8,097	6,607 8,822	,
	59,000	19,138	•	320	998	14,111	15,429	62,709
Total	75,021	23,490	Annuity Lump Sum	239 <u>149</u> 388	424 635 1,059	8,034 10,012 18,046	8,697 10,796 19,493	79,018
<u>Females</u>								
Officers	1,177	799	Annuity Lump Sum	2 - 2	2 <u>13</u> 15	38 <u>352</u> 390	42 <u>365</u> 407	1,569
Other Ranks	5 510	2 704	Annuity Lump Sum	1 <u>5</u> 6	12 <u>49</u> 61	60 1,450	73 1,504	6.646
Total	5,519	2,704	Annuity	3	14	1,510 98	1,577 115	6,646
	6,696	3,503	Lump Sum	<u>5</u> 8	<u>62</u> 76	1,802 1,900	<u>1,869</u> 1,984	8,215
Grand Tot	al		Annuity	242	438	8,132	8,812	
	81,717	26,993	Lump Sum	<u>154</u> 396	$\frac{697}{1,135}$	<u>11.814</u> 19,946	12,665 21,477	87,233

^{*} In this column, contributors who had other rank status on January 1, 1984 and who attained officer status at some time during the 1984-1987 period are shown as officers rather than other ranks.

^{**} Excludes 3144 contributors entitled to a lump sum who were released from the Forces during their year of entry.

^{***} Compulsory retirements because of age, promotion of economy or efficiency, misconduct, together with all retirements for other reasons.

B. Persons Entitled to Annuities or Annual Allowances

Retired Contributors

Group	Entitled 84-01-01	New Entitlements 1984 to 1987		rmination 84 to 19 Other*	987	Entitled 87-12-31
<u>Males</u>						
Officers Non-disabled Disabled Other Ranks Non-disabled	444 12,687	$ \begin{array}{r} 2,020 \\ \underline{20} \\ 2,040 \end{array} $ 6,014	735 <u>47</u> 782 2,308	58 58 245	793 <u>47</u> 840 2,553	13,470 417 13,887
Disabled	6,194 47,402	404 6,418	$\frac{484}{2,792}$	$\frac{17}{262}$	501 3,054	6,097 50,766
<u>Total</u> Non-disabled Disabled	53,451 6,638 60,089	8,034 <u>424</u> 8,458	3,043 <u>531</u> 3,574	303 <u>17</u> 320	3,346 548 3,894	58,139 6,514 64,653
<u>Females</u>						
Officers Non-disabled Disabled	228 _ <u>15</u> 243	38 - <u>2</u> 40	8 - 8	. · -	8 - 8	258 <u>17</u> 275
Other Ranks Non-disabled Disabled	123 <u>15</u> 138	60 <u>12</u> 72	1 -	- - -	1 - 1	182 <u>27</u> 209
<u>Total</u> Non-disabled Disabled	351 <u>30</u> 381	98 <u>14</u> 112	9 - 9	- -	9 - 9	440 <u>44</u> 484
Males and Fem	<u>ales</u>					
Non-disabled Disabled	53,802 <u>6,668</u>	8,132 <u>438</u>	3,052 	303 _17	3,355 <u>548</u>	58,579 <u>6,558</u>
Grand Total	60,470	8,570	3,583	320	3,903	65,137

^{*} Re-enrollments in the regular force and transfers to other superannuation plans excluding, however, 211 re-enrollments which were treated as being entitled to annuities, because they were not included among the active records.

Surviving Spouses

	Entitled 84-01-01	New entitlements 1984 to 1987	Reinstate- ments 1984-1987		minations 4 to 1987 Remarriages	Entitled 87-12-31
Widows	8,018	3,144	64	437	95	10,630
Widowers	5	4			_2	7
Total	8,023	3,148	64	437	97	10,637

Children and Students

		New		
	Entitled 84-01-01	Entitlements 1984 to 1987	Terminations 1984 to 1987	Entitled 87-12-31
Children under 18 Students (18 to 25)	1,329 817	538 503	937 745	930 575

VI. Normal Actuarial Cost

Normal actuarial cost, i.e., the total rates required from contributors and the Government to reflect the costs of benefits in respect of future service, are shown in the Cost Certificate (Section II).

The total normal cost for 1988 on the basis of the assumptions described in Section IV is shown in the Cost Certificate as 19.30% of salary, while on the basis of the assumptions used for purposes of the preceding report (Appendix 1D) the corresponding figure would be 21.84%. The various factors accounting for the decrease of 2.54% of remuneration are shown below:

<u>Increase (Decrease)</u>
% of salary
.37
.57
.10
(2.00)
(1.60)
02
(2.54)

VII. Valuation Balance Sheet and Gain and Loss Analysis

The results of the valuation as at December 31, 1987, based on the actuarial method and assumptions described in Sections III and IV, respectively, are shown in the following balance sheet:

<u>Assets</u>		(\$ millions)
Balance of Accounts		
CFSA* SRBA	17,550.7 	18,309.1
Actuarial present value of future instalments of past service contributions plus future credits from the Government (assumed equal to 1.67 times the amount from contributors)		39.7
Total assets		18,348.8
Unrecorded (unfunded) actuarial liability		613.0
Liabilities Actuarial present value of prospective benefits to and in respect of members of the regular force Actuarial present value of benefits to persons entitled to an annuity or annual allowance		7,304.5
Disabled contributors Others, including deferred annuities Spouses Children and students	525.3 10,366.6 757.6	11 657 2
	7.8	11,657.3
Total actuarial liability		18,961.8

^{*} This balance includes outstanding items at December 31, 1987, amounting to \$192.3 million.

The foregoing balance sheet indicates an unrecorded (unfunded) liability of about \$613 million. This represents a decrease of \$419 million from the value shown on page 27 of the preceding report. The major actuarial gains and losses which account for this decrease are as follows:

Actuarial Gains and Losses (in millions of dollars)

	<u>Gain</u>	<u>Loss</u>	Net Gain <u>(Loss)</u>
Operational gains and losses			
- Retirements - Disability - Terminations - Family composition - Pensioner and survivor mortality - Promotional pay increases - General pay Increases - Interest - Contribution rate deficiency - Indexing benefits charged directly to Consolidated Revenue Fund - Prior service - Data corrections - Error in 1983 valuation - Miscellaneous (net)	80 30 34 51 449 1242 	97 152 650 531 66 287 483	(291)
Changes in actuarial assumptions and methods			
- Economic assumptions - Retirement (non-disability) - Termination - Promotional pay increases - Age differences between spouses - Pensioner and survivor mortality	394 231 22 172	5 59	
- Disability - Active contributor mortality - Reduction in assumed rate of future	3	15	
government prior service contributions	822	33 112	710
Total net gain			419

VIII. Actuarial Opinion and Acknowledgements

In closing we wish to acknowledge the co-operation of the various sections of the Department of National Defence which supplied us with the data on contributors and annuitants.

In my opinion, for the purposes of this actuarial report

- (a) the data on which this report is based are sufficient and reliable;
- (b) the assumptions that have been used are adequate and appropriate;
- (c) the methods that have been employed are consistent with sound actuarial principles.

This report has been prepared and this opinion has been given in accordance with generally accepted actuarial principles and the recommendations of the Canadian Institute of Actuaries.

Respectfully submitted,

G.W. Poznanski, D.S.A., F.C.I.A.

Chief Actuary.

Ottawa, Canada

June 21, 1989

APPENDIX 1

Estimates relating to the existing financing provision of the Canadian Forces Superannuation Act

The existing financing provisions of the CFSA contemplate the recognition of actuarial liabilities relating to basic CFSA benefits, but not of those relating to indexing pursuant to the Supplementary Retirement Benefits Act.

The CFSA provides for the liquidation of any unfunded actuarial liability and for special credits to the Canadian Forces Superannuation Account relating to pay increases in excess of the rates assumed in the preceding actuarial report.

On the basis of the assumptions described in Section IV of this report, it was estimated that as at December 31, 1987, the assets relating to the CFSA amounting to \$17,586 million exceeded the actuarial liabilities by about \$8,153 million.

With regard to pay increases, it was estimated on the basis of the same assumptions that additional liabilities arising out of general pay increases in excess of the assumed rate for a year are equivalent to 2.47 times in the case of officers and 1.77 times in the case of other ranks, the increase in the effective payroll in excess of the increase assumed for the year.

APPENDIX 2

Summary of the Pension Plan established under the Canadian Forces Superannuation Act

A. <u>Coverage</u>

Persons covered by the CFSA comprise

- (1) every member of the regular force*, who
 - (a) was a contributor under Part V of the former Act immediately before March 1, 1960, the date on which the Act came into force,
 - (b) not having been a member of the regular force immediately before March 1, 1960, became a member on or subsequent to that date,
 - (c) having been a member of the regular force on March 1, 1960 thereafter ceased to be a member and subsequently was re-enrolled in the regular force,
 - (d) having been a member of the regular force but not a contributor under Part V of the former Act on March 1, 1960, elected to become a contributor under the Act within one year from that date or
 - (e) having been entitled to a pension under any of Part I to III of the former Act on March 1, 1960 elected to become a contributor under the Act within one year from that date;
- (2) former members of the regular force who are entitled to annuities payable out of the Canadian Forces Superannuation Account; and
- (3) spouses and children of deceased contributors who are entitled to annual allowances payable out of the CFS Account.

^{*} See footnote on page 8

B. Credits and charges to the Canadian Forces Superannuation (CFS)

Account and the Supplementary Retirement Benefits (SRB) Account

1. Contributions from contributors

The rate of contribution to the CFS Account is 6.5% of pay (Note 1) reduced by the amount that the contributor is required to contribute under the Canada Pension Plan in respect of pay received as a member of the regular force. (For example, in 1988 the reduction was 2.0% of pay between \$2,600 and \$26,500 per annum.) Contributions for current service cease when a contributor has credit for 35 years of pensionable service.

In addition, all contributors regardless of length of service are required to contribute one percent of pay to the SRB Account.

A contributor may elect to contribute in respect of any period of prior pensionable service as described in Note 2 on page 24.

Subject to a few minor exceptions, if the member elects to contribute for a period of prior pensionable service within one year of becoming a contributor, the amount required to be contributed is equal to the total contributions that the member would have had to make during that period of prior pensionable service, if the contributions had been computed

- (a) for any period of service described in (a) and (b) of Note 2 according to the rate of pay applicable to the contributor on the most recent occasion on which he or she became a contributor under the CFSA, and
- (b) for other service, according to the rate of pay authorized to be paid to the contributor during that period,

and at the rates of contribution applicable to the period. The rates which apply with respect to the CFS Account are for male members: 6.0% for service on or before March 31, 1969 and 6.5% for service after that date; and for female members: 6.0% for service on or before March 31, 1969, 5% for service from that date to January 31, 1976, and 6.5% for service since that date. Contributions for any period of prior pensionable service after December 31, 1965 are subject to adjustment for integration with the Canada Pension Plan. With respect to the SRB Account the applicable rate was 0.5% for service from April 1, 1970 to December 31, 1976, and 1% for service after the latter date. All contributions are increased by simple interest at the rate of 4% per annum from the middle of each fiscal year of prior service to the date of election.

If an election in respect of a period of prior pensionable service is not made within the prescribed time, a contributor may make an election at any later time while still a member of the regular force, subject to evidence of good health at date of election. However, the rate of pay used in determining the contributions for such prior service will be the rate of pay authorized to be paid to the contributor at the time the election is made.

Contributions in respect of prior service may be paid in a lump sum, or by monthly instalments, payable for life, or for a period ceasing upon death or completion of a fixed number of years whichever is earlier. Monthly instalments are computed on the basis of the Canadian Life Table No. 2 (1941) Males or Females, as the case may be, and interest at 4% per annum.

2. Contributions from employer

The Government, as employer credits the CFS and SRB Accounts with amounts related to the contributions from members or retired members of the regular force in respect of current and past service. With respect to the SRB Account, the amount matches the contributions from members or retired members. For the CFS Account, the actual amount is specified by the Minister of Finance and since April 1, 1969 has been equal to 1.8 times (earlier 5/3 times) the amount received from contributors in the preceding quarter.

In addition, the Government credits the CFS Account with such amounts as, in the opinion of the Minister of Finance, are required to provide for the increase in cost of the benefits payable under the CFSA as a result of any pay increase applicable to at least one percent of the contributors or are required to meet the cost of benefits payable under the CFSA as shown by the most recent actuarial report. The technique for financing the special employer contributions has been to credit to the CFS Account the full amount estimated to be required in the fiscal year that the pay increase is authorized or the actuarial report is laid before Parliament and to charge such amounts to the Consolidated Revenue Fund in five equal annual instalments beginning in such fiscal year.

3. <u>Interest</u>

In its role as custodian of the account, the Government credits the CFS Account with amounts representing interest on the balance in the CFS Account from time to time calculated at the interest rate assumed in the preceding actuarial valuation and at such supplementary rate as may be provided by regulation. However, the Minister may apply such supplementary interest to reduce the instalments being charged to the Consolidated Revenue Fund in respect of increases in costs due to pay increases and in respect of unfunded actuarial liabilities indicated in actuarial reports.

Until the quarter ending June 30, 1969, interest was credited to the CFS Account on the last day of each quarter in the fiscal year at the rate of one percent of the balance to the credit of that Account on the last day of the preceding quarter, i.e. approximately 4% per annum. The total rate at which interest is now credited to the CFS Account changes every three months and is calculated as if the amounts not required for payment of benefits in each quarter pursuant to the Canadian Forces, Public Service and RCMP Superannuation Acts had been invested on a basis similar to the one used for the Canada Pension Plan, i.e. in twenty-year bonds having a yield equivalent to the average yield on Government of Canada bonds with 20 or more years to maturity outstanding at that time.

Interest is credited to the SRB Account at the end of each quarter. The amount of the interest is calculated monthly on the minimum balance at a rate of interest representative of the yield on outstanding Government of Canada bonds having a term to maturity of five years, less 0.125%.

4. Payments of Benefits

All payments pursuant to the CFSA (i.e. excluding indexing) are charged to the CFS Account. Benefits resulting from indexing pursuant to the SRBA are charged to the SRB Account only until the accumulated total paid in respect of a former contributor equals the aggregate of all amounts credited to the SRB Account in respect of that person, including interest. SRBA benefits paid in excess of that aggregate are then charged directly to the Consolidated Revenue Fund.

C. Summary of Benefits

1. Contributors* who are members of the regular force

Type of termination	Service in the regular force (Note 3)	Benefit
Retirement because of age (Note 6)	3 years or less	Return of contributions (Note 7)
	More than 3 but less than 10 years	Return of contributions or cash termination allowance (Note 8), whichever is the greater
	10 years or more	Immediate annuity (Note 9)

^{*} Contributors include persons who have ceased to be required to contribute to the CFS Account.

Type of termination	Service in the regular force	<u>Benefit</u>
Retirement on completion of short engagement (an officer	Less than 10 years	Return of contributions
contributor other than a subordinate officer who has not reached retirement age and is not serving on an intermediate engagement	At least 10 but less than 20 years	At option of contributor (1) return of contributions or (2) deferred annuity (Note 11)
or for an indefinite period of service): see Notes 4 and 5	20 years or more	See retirement for other reasons
Retirement on comple- tion of intermediate engagement (a contri- butor who has not reached retirement age and is not serving for an indefinite period of service)	20 years or more (by definition in CFS Regulations)	Immediate annuity
Retirement during an indefinite period of service after having completed an intermediate engagement and prior to reaching retirement age, for reasons other than disability, economy or efficiency, or misconduct	Any length	Immediate annuity to which contributor was entitled upon completion of intermediate engagement increased to such extent as prescribed by regulation*
Compulsory retire- ment because of disability**	Less than 10 years	Return of contributions or cash termination allowance, whichever is greater
	10 years or more	Immediate annuity

^{*} The CFSA limits the annuity to the immediate annuity to which the contributor would be entitled if retiring because of age or disability, and the formula in the CFS Regulations (Note 10) always produces less than this maximum.

^{**} Any condition rendering a member of the regular force mentally or physically unfit to perform his or her duties.

Type of termination	Service in the regular force	Benefit
Compulsory retire- ment to promote	3 years or less	Return of contributions
economy or efficiency	More than 3 but less than 10 years	Return of contributions or cash termination allowance, whichever is greater
	At least 10 but less than 20 years	At option of contributor (1) return of contributions (2) deferred annuity, or (3) with consent of the Minister of National Defence an immediate reduced annuity (Note 12)
	20 years or more	Immediate annuity
Compulsory retire- ment because of	Less than 10 years	Return of contributions
misconduct, as defined in the CFSA	10 years or more	Return of contributions or, with the consent of Treasury Board, the whole or any part specified by Treasury Board of the annuity to which the contributor would have been entitled at the time of his or her retirement if "retired for other reasons" (Note 13)
Retirement for other reasons	Less than 10 years	Return of contributions
	At least 10 but less than 20 years	At option of contributor (1) return of contributions or (2) deferred annuity
	At least 20 but less than 25 years	Immediate reduced annuity
	25 years or more	Officer contributor - immediate reduced annuity
		Other than Officer contributor - immediate annuity

Type of termination	Service in the regular force	Benefit
Death leaving no spouse or eligible children under 25 (Note 14)	Less than 10 years	Return of contributions or cash termination allowance, whichever is greater
	10 years or more	Five times the annuity to which the contributor would have been entitled at the date of death
Death leaving spouse and/or eligible children under age 25	Less than 5 years	Return of contributions or an amount equal to one month's pay of the deceased contributor for each year of credited pensionable service, whichever is the greater
	5 years or more	Annual allowances (Notes 14, 15 & 16)

2. Former contributors who are receiving annuities or are entitled to deferred annuities (Note 11)

Type of Termination

Benefit

Death leaving no spouse or eligible children under age 25

Minimum benefit (Note 16)

Death leaving spouse and/or eligible children under age 25

Annual allowances

Indexing

The Supplementary Retirement Benefits Act (SRBA) was enacted in 1970 to provide benefit adjustments related to increases in the cost of living for persons in receipt of pensions payable out of the Consolidated Revenue Fund. This Act applies to former contributors to the CFS Account and their surviving spouses and children who are entitled to annuities or annual allowances.

The supplementary benefit is calculated by multiplying the amount of the annuity or annual allowance to which the person is entitled from the CFS Account by the ratio of the Benefit Index for the year of payment to the Benefit Index for the year in which the person to whom or in respect of whose service the pension is payable ceased to be employed, and subtracting the amount of the annuity or annual allowance. The Benefit Index for the years prior to 1971 is shown in a Schedule in the Act. The Benefit Index for any year after 1970 is equal to the Benefit Index for the preceding year multiplied by the average of the Consumer Price Index for Canada for the twelve-month period ending on September 30 of that preceding year and divided by the average for a corresponding period one year earlier. Prior to 1973, the increase in the initial Benefit Index was limited to a maximum of 2% in any year. An amendment to the Supplementary Retirement Benefits Act in 1973 removed that limit and provided that the increase payable in January 1974 would take into account increases in the Consumer Price Index above the 2% ceiling since 1970. In January 1983, an amendment made as part of a general economic restraints program limited the increase for 1983 and 1984 to 6.5% and 5.5%, respectively. Since 1983 the initial increase in the Benefit Index is prorated in respect of annuitants who have been in receipt of benefits for less than the full preceding calendar year (i.e. for contributors who retired or in respect of contributors who died during the preceding year).

Under the terms of the original Act of 1970, the supplementary benefits were payable to all former contributors in receipt of annuities or annual allowances who had attained age 60 or, if less than that age, were unfit to perform duties as a member of the regular force by reason of any mental or physical disability, and to all spouses and children in receipt of annual allowances. The amendments effective January 1, 1973 provided for the payment of benefits to former contributors aged 55-59 in receipt of annuities or annual allowances in cases where the total of years of service plus age equals or exceeds 85 years.

D. <u>Explanatory Notes</u>

Note 1: Pay

The term "pay", as it applies to a contributor under this plan and as it is used throughout this report, means pay at the rates prescribed by the regulations made pursuant to the National Defence Act together with the "allowances" representing medical-dental care costs prescribed by the Canadian Forces Superannuation Regulations.

Note 2: Pensionable Service

The amount of any annuity, cash termination allowance or annual allowance to which a contributor or the spouse or children of a contributor may become entitled under the CFSA depends upon the number of years of credited "pensionable service" at the date the contributor ceases to be a member of the regular force.

"Pensionable service" is described in detail in the CFSA. In general, pensionable service includes any period of service in the regular force for which a contributor has contributed or elected to contribute. It may also include, if the contributor elects to contribute therefor, periods of prior service

- (a) as a full-time, paid employee in the Public Service,
- (b) as a member of the Royal Canadian Mounted Police,
- (c) as a member
 - (i) on active service during time of war in the naval, army or air forces of Her Majesty raised by Canada,
 - (ii) of the Canadian Army Special Force established in 1950,
 - (iii) for three months or more of the Canadian Forces or of the naval, army or air forces of Her Majesty raised by Canada, other than the regular force, provided that such service was full-time and continuous.
 - (iv) of the naval, army or air forces of Her Majesty other than those raised by Canada, provided that such service was full-time service during time of war or otherwise in the permanent forces, and

one-fourth of any period of prior service in the Canadian Forces or in the naval, army or air forces of Her Majesty raised by Canada, other than the regular force, during which the contributor was liable to be called out for periodic training or duty otherwise than during an emergency.

Note 3: Service in the Regular Force

The length of "service in the regular force" together with circumstances of his or her termination of service govern the type of benefit payable to a contributor or to the surviving spouse or children.

For most purposes, "service in the regular force" means service in the regular force of the Canadian Forces or its predecessors excluding any service for which a contributor was paid a return of contributions or lump sum payment under the CFSA and for which he did not on subsequent enrolment elect to pay. However, for the purpose of computing the length of service in the regular force of a contributor who dies leaving a spouse or children eligible for annual allowances or who is compulsorily retired either because of disability or, in some circumstances, to promote economy or efficiency, certain types of elective service are prescribed by the CFSA as "service in the regular force" in addition to service in the regular force. Such "service in the regular force" consists of any periods of elective pensionable service described in items (a), (b) and (c)(i), (ii) and (iii) of Note 2 with the provision that the service described in item (c)(iii) must have been in a theatre of active operations.

When calculating the length of service for purposes of determining the benefits payable upon voluntary retirement of a contributor with ten or more years service in the regular force, any period of active service during time of war in the naval, army or air forces of Her Majesty raised by Canada is included.

Note 4: Short Engagement

As defined in the CFSA, short engagement means a fixed period of service of a member of the regular force as an officer, other than as a subordinate officer, of such duration shorter than an intermediate engagement as is prescribed by regulation. A period of nine years has been prescribed by regulation for a short engagement for commissioned officers.

Note 5: Intermediate Engagement

As defined in the CFSA, intermediate engagement means a fixed period of service of a member of the regular force of such duration as is prescribed by regulation. A period of service to complete 20 years of total continuous service plus any additional time necessary to reach age 40 has been prescribed as an intermediate engagement for all members.

Note 6: Retirement because of Age

Retirement because of age means ceasing to be a member of the regular force at or after the prescribed retirement age for any reason other than disability, misconduct or death.

A retirement age of 55 has been prescribed by regulations made under the National Defence Act for all members serving under the career programs adopted in 1975.

For those members enrolled prior to the introduction of the new programs who are not subject to their provisions, the previous retirement ages varying by rank as prescribed by the regulations continue to apply. These latter retirement ages, effective February 1, 1968, for contributors who enrolled on or after that date, or those serving on that date who elected to have such ages apply to them are shown below.

For those contributors serving on February 1, 1968, who did not elect to have these ages apply to them, the retirement ages are similar to those below but vary slightly by rank and by branch of the Forces.

Old Retirement Ages

	General <u>Service</u>	Specialist Service	Commissioned from Ranks
Brigadier-General			•
and above	55	60	55
Colonel	55	58	55
Lieutenant-Colonel	51	55	50
Major	47	55	50
Captain and			
Lieutenant	45	50	50
Other Ranks above Corporal	50		
Corporal and below	44		

For those contributors to whom the above ages would normally apply, the regulations also prescribe, for purposes of compulsory retirement under certain conditions or voluntary retirement, that retirement age will be deemed to have been reached upon completion of the following periods of full-time paid service in any of Her Majesty's Forces, if the resulting date of retirement is earlier.

	Years of Service
Colonel and above	30
Officers below Colonel	28
Other Ranks above Corporal	30
Corporal and below	25

Note 7: Return of Contributions

"Return of contributions" means the payment of an amount equal to the total current and prior service contributions paid by the contributor into the CFS and SRB Accounts or paid into any other superannuation account or pension fund and transferred to the CFS and SRB Accounts plus interest on all amounts at the rate of 4% per annum to December 31st of the year immediately preceding the year the contributor ceased to be a member of the regular force. Interest is credited each December 31st (beginning in 1974) on the accumulated contributions with interest as at the preceding December 31st.

Note 8: Cash Termination Allowance

"Cash termination allowance" means an amount equal to one month's pay at the rate authorized to be paid to the contributor at date of termination multiplied by the number of years of pensionable service to the credit of the contributor minus the total reduction in contributions to the CFS Account as a result of integration of the Plan with the Canada Pension Plan.

Note 9: Immediate Annuity

"Immediate annuity" means an annuity that becomes payable immediately upon retirement. The annual amount of the annuity is equal to 2% of the contributor's average annual pay in respect of any selected six-year period of pensionable service multiplied by the number of years of pensionable service not exceeding 35. For a contributor who has reached age 65 or is entitled to a disability pension under the Canada Pension Plan or the Quebec Pension Plan, the amount of the annuity which is payable under the CFSA is reduced by 0.7% of the average annual pay used in determining the amount of the annuity, not exceeding the "Average Maximum Pensionable Earnings" multiplied by the number of years of pensionable service after 1965 or after attaining age 18, whichever is later, but not exceeding 35 years. "Average Maximum Pensionable Earnings" is the average of the Year's Maximum Pensionable Earnings, as defined in the Canada Pension Plan, during the contributor's last three years of service.

All annuities are normally payable in equal monthly instalments in arrears until the end of the month in which the contributor dies.

Note 10: Annuity Payable upon Retirement during an Indefinite Period of Service

The amount of annuity prescribed by CFS regulation to which a contributor who, not having reached retirement age, ceases to be a member of the regular force while on an indefinite period of service after completing an intermediate engagement for any reason other than disability, to promote economy or efficiency, or misconduct is entitled, is equal to the greater of an immediate annuity based on the pensionable service to the date of completion of the intermediate engagement only and the six-year

average annual pay at date of retirement, and an immediate annuity based upon the total pensionable service to the date of retirement and the six-year average annual pay at that date reduced by 5% of such amount of annuity for each full year by which

- (a) in the case of an officer, the age at the date of retirement is less than the retirement age applicable to the contributor's rank, or
- (b) in the case of a contributor other than an officer, the age at the date of retirement is less than the retirement age applicable to the contributor's rank or the period of service in the forces is less than 25 years, whichever is the lesser.

Note 11: Deferred Annuity

"Deferred annuity" means an annuity that becomes payable upon attainment of age 60. The annual payment is determined on the same basis as for an immediate annuity.

If a former contributor under the age of 60 eligible for a deferred annuity under the CFSA becomes disabled and receives a pension under the terms of the Canada Pension Plan or the Quebec Pension Plan, the annuity is converted to an immediate annuity. If the contributor later ceases to be entitled to a disability pension and has not reached age 60, the immediate annuity reverts to a deferred annuity.

Note 12: Immediate Reduced Annuity

"Immediate reduced annuity" means an immediate annuity where the annual amount of the annuity as determined in Note 9 is reduced as stated below.

With the consent of the Minister of National Defence, a contributor who is compulsorily retired to promote economy or efficiency and has ten or more years but less than twenty years of service in the regular force may choose an immediate annuity reduced, until attainment of age 65 but not thereafter, by 5% for each full year not exceeding six by which

- (a) the period of service in the regular force is less than 20 years, or
- (b) the age of the contributor at the time of retirement is less than the retirement age applicable to the contributor's rank,

whichever is the lesser.

A contributor who, not having reached retirement age, ceases to be a member of the regular force for any reason other than disability, to promote economy or efficiency, misconduct, or while on an indefinite period of service is entitled

- (1) as an officer having served in the regular force for 20 years or more, to an immediate annuity reduced by 5% for each full year by which his age at the time of his retirement is less than the retirement age applicable to his rank, or
- (2) as other than an officer having served in the regular force for 20 years or more but less than 25 years, to an immediate annuity reduced by 5% for each full year by which
 - (a) the period of service in the regular force is less than 25 years, or
 - (b) the age at the time of retirement is less than the retirement age applicable to the contributor's rank,

whichever is the lesser.

Note 13: Retirement because of Misconduct

In the case of compulsory retirement because of misconduct, the contributor is entitled to (a) a return of contributions, or (b) having served in the regular force for ten or more years, with the consent of the Treasury Board, the whole or any part specified by the Treasury Board of any annuity to which the contributor would have been entitled if the contributor had "retired for other reasons" (i.e excluding disability, economy and efficiency, completion of short or intermediate engagement and misconduct) at the same date, except that in no case shall the capitalized value of any reduced benefit (based by Regulation on the Canadian Life Table No. 2 (1941) and an interest rate of 4%) be less than the return of contributions.

Note 14: Eligible Children

The expression "eligible children under 25" includes all children of the contributor under age 18, and any child of the contributor age 18 or over but under 25, unmarried and in full-time attendance at a school or university, having been in such attendance substantially without interruption since he or she reached age 18 or the contributor died, whichever occurred later.

Note 15: Annual Allowances

"Annual allowances" to the surviving spouse and children of a contributor means annuities that become payable immediately upon the death of the contributor. The amounts of the allowances are determined with reference to a basic allowance and are ordinarily payable in equal monthly instalments.

The basic allowance is equal to 1% of the average annual pay of the deceased contributor in respect of any selected six-year period of his pensionable service multiplied by the number of years of pensionable service not exceeding 35.

A surviving spouse is entitled to an annual allowance equal to the basic allowance except under the following circumstances:

- (a) If the age of the contributor exceeded that of the surviving spouse by 20 or more years, the allowance is reduced as prescribed by CFS regulation.
- (b) If the contributor dies within one year after marriage, no allowance is payable to the surviving spouse if the Minister of National Defence is not satisfied that the contributor was at the time of that marriage in such a condition of health as to justify his or her having an expectation of surviving for at least one year thereafter.
- (c) If a surviving spouse remarries, the payment of any allowance is suspended but is resumed in the event of dissolution or annulment of that marriage or death of her or his spouse by that marriage. In lieu of any further claim to the payment of the allowance, an amount equal to the return of contributions less the total amount of benefit payments made to the contributor and to his or her surviving spouse and children may be paid to the surviving spouse at any time before the dissolution or annulment of that marriage or the death of her or his spouse by that marriage, if there is no child of the contributor entitled to an allowance under the CFSA.
- (d) If a member of the forces marries after age 60, his surviving spouse is not entitled to any annual allowance, unless after marriage the member became or continued to be a contributor*.
- (e) No allowance is payable to a widower of a contributor who was not a member of the regular force on or after December 20, 1975.

The annual allowance for an eligible child is equal to 20% of the basic allowance or, if the contributor died leaving no spouse or the spouse is dead, to 40% of the basic allowance, provided that when the number of eligible children of a deceased contributor exceeds four the total amount of allowances to such children shall not exceed the amount that would be payable if there were only four. Allowances are not payable to children of a spouse who is not entitled to an allowance as the result of death of a contributor within one year of marriage under circumstances stated in paragraph (b) of this note. Except as provided by regulation, allowances are not payable to a child who was born, adopted or became a stepchild of a member of the regular force when the member was over 60 years of age, unless he or she became or continued to be a contributor* after attaining 60 years of age.

^{*} Includes a person who has ceased to be required to contribute to the CFS Account.

Note 16: Minimum Benefit

If upon the death of a contributor there is no person to whom an allowance provided under the terms of the CFSA may be paid, or if the persons to whom such allowances may be paid die or cease to be entitled thereto and no other amount may be paid to them, there is paid to the estate of the contributor

- (a) if the contributor was not a member of the regular force upon or after December 20, 1975, any amount by which the amount of return of contributions exceeds the aggregate of all amounts paid to those persons and to the contributor,
- (b) if the contributor was a member of the regular force upon or after December 20, 1975, an amount similar to (a) above except that in respect of the CFSA the "return of contributions" is taken as at least equal to five times the immediate annuity to which the contributor was or would have been entitled at the time of his or her death,
- (c) if the contributor was retired and entitled to an immediate annuity from which a deduction had been made as a result of integration with the Canada Pension Plan, the amount payable in (a) or (b) above cannot be less than the amount by which the cash termination allowance exceeds the aggregate of all amounts paid to those persons and to the contributor.

APPENDIX 3

Promotional pay increases

<u>Service</u>	<u>Officers</u>	Other Ranks
0	0.194	0.362
1	0.228	0.419
2	0.270	0.480
3	0.323	0.543
4	0.384	0.599
5	0.447	0.639
6	0.500	0.665
7	0.542	0.681
8	0.576	0.694
9	0.607	0.704
10	0.636	0.714
11	0.663	0.723
12	0.689	0.732
13	0.714	0.743
14	0.735	0.754
15	0.753	0.765
16	0.769	0.777
17	0.785	0.790
18	0.800	0.803
19	0.815	0.816
20	0.829	0.829
21	0.843	0.843
22	0.857	0.856
23	0.870	0.870
24	0.883	0.883
25	0.896	0.897
26	0.908	0.910
27	0.919	0.922
28	0.930	0.934
29	0.941	0.947
30	0.951	0.959
31	0.959	0.970
32	0.967	0.979
33	0.975	0.988
34	0.983	0.996
35 36 37 38 39	0.991 0.995 0.997 1.000 1.000	1.000 1.000 1.000 1.000

APPENDIX 4

Rates of retirement assumed for contributors with entitlement to a return of contributions or cash termination allowance for reasons other than disability

	M	ales	Females			
<u>Age</u>	Officers	Other Ranks	Officers	Other Ranks		
17	0.34020	0.15522	0.27510	0.06487		
18	0.25049	0.11369	0.19710	0.06487		
19	0.12154	0.09563	0.13937	0.08857		
20	0.09101	0.08596	0.09671	0.09079		
21	0.06526	0.08044	0.06569	0.08526		
22	0.04842	0.07287	0.04496	0.07932		
23	0.03661	0.06446	0.03563	0.07396		
24	0.03809	0.05988	0.04053	0.07051		
25	0.04437	0.04958	0.06027	0.06793		
26	0.04884	0.04164	0.08438	0.06216		
27	0.04785	0.03589	0.09984	0.05547		
28	0.04335	0.03166	0.09820	0.05094		
29	0.04217	0.02742	0.08520	0.04722		
30	0.04011	0.02581	0.07090	0.04854		
31	0.03556	0.01886	0.06296	0.04230		
32	0.02811	0.01823	0.06090	0.03396		
33	0.02203	0.01311	0.06051	0.02689		
34	0.01921	0.01204	0.05757	0.02401		
				0.02702		
35	0.01562	0.01061	0.05145	0.02326		
36	0.01293	0.00480	0.04340	0.02045		
37	0.01131	0.00360	0.03522	0.01920		
38	0.01060	0.00360	0.02782	0.01651		
39	0.00987	0.00360	0.02198	0.01238		
40	0.00925	0.00360	0.01827	0.00413		
41	0.00927	0.00360	0.01741	0.00000		
42	0.01060	0.00360	0.01687	0.00000		
43	0.01417	0.00360	0.01619	0.00000		
44	0.01957	0.00360	0.01300	0.00000		
45	0.02466	0.00360	0.01000	0.00000		
46	0.02675	0.00360	0.00800	0.00000		
47	0.02573	0.00360	0.00600	0.00000		
48	0.02392	0.00360	0.00400	0.00000		
49	0.02196	0.00360	0.00200	0.00000		
50+	0.02000	0.00360	0.00000	0.00000		

APPENDIX 5

Rates of retirement with entitlement to an annuity for reasons other than disability

	Age	<u>Officers</u>	Other Ranks
	27	0.00000	0.00000
	28	0.00010	0.00000
	29	0.00020	0.00010
-	30	0.00030	0.00010
	31	0.00040	0.00018
	32	0.00051	0.00030
	33	0.00060	0.00060
	34	0.00083	0.00113
	35	0.00085	0.00201
	36	0.00152	0.00372
	37	0.00225	0.01603
	38	0.00581	0.02887
	39	0.02899	0.04500
	42	0.04817 0.02993 0.03056 0.03678 0.05858	0:06441 0.06900 0.08586 0.10196 0.10361
	45	0.06932	0.09593
	46	0.08113	0.09602
	47	0.09391	0.10941
	48	0.09791	0.12193
	49	0.10208	0.22992
	50	0.10811	0.30865
	51	0.11413	0.24810
	52	0.13006	0.22028
	53	0.15586	0.26012
	54	0.35769	0.44933
	55 56 57 58 59	0.65000 0.65000 0.65000 0.65000	0.85000 0.90000 0.90000 0.90000 0.90000
	60	1.00000	1.00000

APPENDIX 6

Rates of retirement because of disability with entitlement to an annuity,

	a cash cell	THECTON ATTOWA	nce or a return o: Males	T COMOT TRUCTORS	—
	Age	Officers	Other Ranks	<u>Females</u>	
	17	0.00217	0.00870	0.00162	
	18	0.00219	0.00840	0.00235	
	19	0.00222	0.00807	0.00320	
	20	0.00223	0.00738	0.00374	
	21	0.00222	0.00626	0.00417	
	22	0.00217	0.00579	0.00442	
	23	0.00208	0.00547	0.00454	
	24	0.00196	0.00490	0.00444	
	24	0.00170	0.00470	0.00444	
	25	0.00181	0.00432	0.00421	
	26	0.00165	0.00359	0.00385	
	27	0.00148	0.00250	0.00325	
	28	0.00148	0.00234	0.00323	
	29 ·	0.00131	0.00234	0.00278	
-	29 .	0.00115	0.00225	0.00234	
	30	0.00099	0.00223	0.00247	
	31	0.00033	0.00223	0.00247	
	32	0.00076	0.00215	0.00257	
	33	0.00070	0.00208	0.00257	
	34	0.00067	0.00203	0.00261	
	35	0.00067	0.00210	0.00270	
	36				
		0.00071	0.00233	0.00277	
	37	0.00078	0.00266	0.00292	
	38	0.00086	0.00300	0.00307	
	39	0.00093	0.00330	0.00323	
	40	0.00097	0.00384	0.00348	
	41	0.00100			
			0.00440	0.00371	
	42	0.00102	0.00472	0.00394	
	43	0.00104	0.00480	0.00426	
	44	0.00108	0.00486	0.00458	
	45	0.00115	0.00492	0.00401	
				0.00491	
	46	0.00128	0.00500	0.00531	
	47	0.00148	0.00543	0.00578	
	48	0.00175	0.00617	0.00624	
	49	0.00209	0.00714	0.00669	
	50	0.000/0	0.00000	0.00700	
	50	0.00248	0.00820	0.00720	
	51	0.00288	0.00925	0.00778	
	52	0.00328	0.01039	0.00836	
	53	0.00363	0.01186	0.00901	
	54	0.00391	0.01387	0.00968	
	5.5	0.00/15	0.01645	0.010/0	
	55 56	0.00415	0.01645	0.01042	
	56	0.00432	0.01945	0.01122	
	57	0.00449	0.02095	0.01209	
	58	0.00466	0.02170	0.01309	
	59	0.00483	0.02205	0.01429	

APPENDIX 7

Rates of mortality for active contributors

Males							
<u>Age</u>	Officers Officers	Other Ranks	<u>Females</u>				
17	0.00036	0.00115	0.00019				
18	0.00045	0.00136	0.00019				
19	0.00053	0.00144	0.00021				
20	0.00060	0.00144	0.00025				
21	0.00066	0.00142	0.00030				
22	0.00072	0.00132	0.00035				
23	0.00078	0.00113	0.00042				
24	0.00084	0.00102	0.00045				
25	0.00089	0.00098	0.00047				
26	0.00095	0.00094	0.00047				
27	0.00099	0.00088	0.00047				
28	0.00103	0.00086	0.00047				
29	0.00105	0.00083	0.00047				
30	0.00106	0.00081	0.00048				
31	0.00105	0.00077	0.00050				
32	0.00102	0.00071	0.00050				
33	0.00098	0.00074	0.00052				
34	0.00094	0.00076	0.00053				
35	0.00090	0.00081	0.00055				
36	0.00087	0.00092	0.00056				
37	0.00084	0.00111	0.00057				
38	0.00082	0.00127	0.00060				
39	0.00081	0.00137	0.00063				
40	0.00082	0.00141	0.00069				
41	0.00085	0.00143	0.00075				
42	0.00092	0.00147	0.00082				
43	0.00102	0.00156	0.00090				
44	0.00116	0.00173	0.00099				
45	0.00133	0.00195	0.00110				
46	0.00153						
47	0.00132	0.00224	0.00120				
		0.00257	0.00132				
48	0.00190	0.00292	0.00146				
49	0.00208	0.00326	0.00160				
50	0.00226	0.00359	0.00176				
51	0.00246	0.00386	0.00193				
52	0.00269	0.00410	0.00209				
53	0.00297	0.00434	0.00232				
54	0.00330	0.00465	0.00253				
55	0.00367	0.00503	0.00280				
56	0.00407	0.00551	0.00308				
57	0.00450	0.00607	0.00338				
58	0.00495	0.00671	0.00372				
59	0.00544	0.00744	0.00407				

Rates of mortality assumed applicable in 1985* for

contributors retired for reasons other than disability

APPENDIX 8

<u>Males</u> **Officers** Other Ranks <u>Females</u> <u>Age</u> 25 0.000435 0.000610 0.000238 0.000556 30 0.000864 0.000320 0.000771 35 0.001284 0.000443 40 0.001093 0.002254 0.000617 45 0.001909 0.002910 0.000919 50 0.003583 0.004791 0.001505 55 0.005567 0.008576 0.002315 60 0.009563 0.013670 0.003821 0.010675 61 0.015057 0.004241 62 0.011933 0.016583 0.004702 63 0.013319 0.018268 0.005210 64 0.014775 0.020135 0.005769 65 0.016205 0.022207 0.006385 66 0.017526 0.024509 0.007064 67 0.018725 0.027062 0.007817 68 0.019948 0.029881 0.008681 69 0.021413 0.032969 0.009702 70 0.023334 0.036317 0.010921 71 0.025826 0.039909 0.012385 72 0.028934 0.043726 0.014128 73 0.032654 0.047752 0.016159 74 0.036921 0.051977 0.018481 75 0.041628 0.056386 0.021091 76 0.046621 0.060968 0.023992 77 0.051703 0.065710 0.027184 78 0.056663 0.070596 0.030672 79 0.061318 0.075605 0.034459 80 0.069107 0.080718 0.038549 81 0.076025 0.085916 0.042945 82 0.083336 0.091183 0.047655

0.096510

0.106047

0.114835

0.234086

0.469531

0.052691

0.058071

0.063807

0.165103

0.438360

0.090991

0.098942

0.107945

0.226127

0.469531

83

84

85

95

105

^{*} See Appendix 10 for projection factors.

Rates of mortality assumed applicable in 1985* for contributors retired because of disability

APPENDIX 9

	M	ales	Fe	males
Age	<u>Officers</u>	Other Ranks	<u>Officers</u>	Other Ranks
20	0.00169	0.00215	0.00051	0.00065
25	0.00162	0.00206	0.00055	0.00070
30	0.00145	0.00185	0.00063	0.00080
35	0.00168	0.00214	0.00090	0.00115
40	0.00246	0.00313	0.00145	0.00184
45	0.00409	0.00521	0.00230	0.00293
50	0.00690	0.00878	0.00372	0.00473
55	0.01128	0.01435	0.00581	0.00740
60	0.01790	0.02278	0.00885	0.01126
65	0.02810	0.03577	0.01381	0.01758
70	0.04298	0.05470	0.02181	0.02775
75	0.06523	0.08303	0.03529	0.04492
80	0.09833	0.12515	0.05941	0.07562
85	0.14525	0.18486	0.09900	0.12600
90	0.20880	0.26575	0.15790	0.20096
95	0.24435	0.31099	0.18967	0.24139
100	0.81703	1.00000	0.79638	1.00000
105	1.00000	1.00000	1.00000	1.00000

^{*} See Appendix 10 for projection factors.

APPENDIX 10

Projection factors for mortality rates for the years following the year to which the initial rates are assumed to be applicable

<u>Age</u>	Reduction Males	<u>Females</u>	Age	Reduction Males	<u>Females</u>
25	0.10	0.50	65	1.25	1.25
26	0.18	0.55	66	1.20	1.25
27	0.26	0.60	67	1.15	1.25
28	0.34	0.65	68	1.10	1.25
29	0.42	0.70	69	1.05	1.25
30	0.50	0.75	70	1.00	1.25
31	0.55	0.85	71	1.00	1.20
32	0.60	0.95	72	1.00	1.15
33	0.65	1.05	73	1.00	1.10
34	0.70	1.15	74	1.00	1.05
35	0.75	1.25	75	1.00	1.00
36	0.80	1.35	76	0.95	1.00
37	0.85	1.45	77	0.90	1.00
38	0.90	1.55	78	0.85	1.00
39	0.95	1.65	79	0.80	1.00
40	1.00	1.75	80	0.75	1.00
41	1.10	1.75	81	0.75	1.00
42	1.20	1.75	82	0.75	1.00
43	1.30	1.75	83	0.75	1.00
44	1.40	1.75	84	0.75	1.00
45	1.50	1.75	85	0.75	1.00
46	1.50	1.70	86	0.70	0.95
47	1.50	1.65	87	0.65	0.90
48	1.50	1.60	88	0.60	0.85
49	1.50	1.55	89	0.55	0.80
50	1.50	1.50	90	0.50	0.75
51	1.45	1.50	91	0.45	0.70
52	1.40	1.50	92	0.40	0.65
53	1.35	1.50	93	0.35	0.60
54	1.30	1.50	94	0.30	0.55
55	1.25	1.50	95	0.25	0.50
56	1.25	1.45	96	0.20	0.40
57	1.25	1.40	97	0.15	0.30
58	1.25	1.35	98	0.10	0.20
59	1.25	1.30	99	0.05	0.10
60	1.25	1.25	100	-	_
61	1.25	1.25	101	_	-
62	1.25	1.25	102	_	_
63	1.25	1.25	103	-	-
64	1.25	1.25	104	-	_
	•				

APPENDIX 11

Rates of mortality assumed applicable in 1984 and of remarriage for widows

Age at becoming <u>Widow</u>		arriage rat ar of widow 3rd yr.		Attained <u>Age</u>	Mortality Rate for 1984*	Ultimate Remarriage <u>Rate**</u>
25 30 35 40 45 50 55	.050 .029 .018 .011 .006 .004	.148 .086 .048 .027 .015 .008	.132 .076 .042 .023 .012 .006	30 35 40 45 50 55 60 65 70 75 80 85 90 95	.0004 .0005 .0008 .0012 .0020 .0036 .0064 .0100 .0156 .0244 .0429 .0699 .1118	.061 .040 .025 .014 .008 .004

Rates of mortality assumed applicable in 1984 and of remarriage for widowers

Age at becoming Widower		arriage rat of being a 3rd yr.		Attained <u>Age</u>	Mortality Rate for 1984*	Ultimate Remarriage <u>Rate**</u>
25 30 35 40 45 50 55	.071 .065 .047 .031 .019 .013	.258 .215 .130 .078 .048 .028	.258 .198 .116 .069 .040 .022	30 35 40 45 50 55 60 65 70 75	.0014 .0013 .0018 .0027 .0046 .0077 .0124 .0195 .0305 .0462	.198 .139 .094 .059 .027 .014
				85 90 95	.1048 .1532 .2177	

^{*} See Appendix 10 for projection factors.

^{**} Remarriage rates are duration-specific for fourteen years and five years, for widows and widowers, respectively.

APPENDIX 12

Proportions of contributors married at death and

Average ages of spouses corresponding to ages of contributors at death

Age of contributor	Mal	es.	Fema	Females		
at death (last birthday)	Proportions married	Average age of widow	Proportions married	Average age of widower		
25	. 412	24	.430	26		
. 30	.751	29	.600	32		
35	.905	33	.630	37		
40	.929	38	.630	42		
45	.933	43	.620	47		
50	.917	48	.570	53		
55	.901	53	.470	58		
60	.893	58	.360	63		
65	.860	62	.310	67		
70	.830	67	. 260	72		
75	830	71	.210	76		
80	.701	7,4	.160	79		
85	. 346	78	.010	82		
90	.327	80				
95	.316	83				
100	.003	86				

Proportions of students entitled to allowances remaining eligible for allowances (at the end of the year of age)

<u>Age</u>	Proportion
18	.50
19	. 65
20	.80
21	.60
22	.50
23	. 50
24	.30

APPENDIX 13A

Male Officers as at December 31, 1987

Number of Contributors and <u>Average Current Pay</u>

Age/Serv.	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	0-44
15-19	523 9844								523 9844
20-24	2158 15832	446 27631							2604 17853
25-29	1356		327						3453
30-34	27042 253 31145	36386 625 42127	40551 1338 44425	293 47095					33111 2509 42825
35-39		76 45073	430 48837	1152 48936	302 50706				2016 48732
40-44	28 43218	33 48488	98 53391	316 52030	1398 51976	405 53049			2278 52077
45-49	17 45476	13 49002	18 55141	33 54545		1057 53504	419 54339		1773 53599
50-54	11 48458	5 58577	7 50587			131 54165			966 55701
55-59	1 46764	1 50292	2 62214	4 54891		14 50886	40 60193	91 55883	184 56566
60-70	-	-	-	-	-	2 54468	-	1 71364	3 60100
15-70	4403 20113	2969 36734	2220 45227	1812 49345	1949 51990	1609 53422	1002 54998	325 57686	16309 39838

Average Age: 33.9

Average Service: 13.7

APPENDIX 13B

Male Other Ranks as at December 31, 1987

Number of Contributors and Average Current Pay

Age/Serv.	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	0-44
15-19	1214 14013								1214 14013
20-24	12093 18736	2211 28302							14304 20214
25-29	4187 22122		1988 30543						17927 27731
30-34	182 25572	2224 29813	7136 30965	902 32085					10444 30723
35-39	11 26416	98 30117	1109 31070	4411 32672	1350 33600				6979 32552
40-44	5 32002	12 31556	29 32962	704 32878	4667 34256	846 35684			6263 34281
45-49	7 33141		7 33081	20 34639	523 34349	2734 35883	638 37091		3940 35850
50-54	-	5 34210	-	1 35580	17 33103	308 36143	1056 37948	125 40595	1512 37730
55~59	-	1 39708	-	-	-	11 40425	50 38247		126 40164
60-70	-	-	-	-	-	-	-		-
15-70	17699 19297	16314 29212	10269 30902	6038 32616	6557 34126	3899 35873		189 40943	62709 28216

Average Age: 31.0

Average Service: 11.3

APPENDIX 13C

Female Officers as at December 31, 1987

Number of Contributors and <u>Average Current Pay</u>

Age/Serv	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	0-44
15-19	107 9674								107 9674
20-24	360 15621	52 27412							412 17109
25-29	246 27888	204 36058	9 39444						459 31746
30-34	42 29921	105 40527	91 42393	4 44499					242 39454
35-39	11 28909	40 42509	86 46088	37 47159	1 42696				175 44397
40-44	2 31308	12 41738	35 46432	40 50313	19 47556	-			108 47266
45-49	2 38760	2 40116	11 45979		12 55562	5 51710	3 54468		46 49781
50-54	-	2 40086	1 46764			4 54795		-	20 51238
55-59	-	-	-	-	-	-	-	-	-
60-70	-	-	-	-	-	-	-	-	-
15-70	770 19784			94 48546		53081	7 55615	-	1569 30843

Average Age: 28.9

Average Service: 6.7

APPENDIX 13D

Female Other Ranks as at December 31, 1987

Number of Contributors and Average Current Pay

Age/Serv.	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	0-44
15-19	118 13822								118 13822
20-24	1542 19422	242 28346							1784 20633
25-29	672 22020	1771 28988	200 30072						2643 27298
30-34	50 24305	444 29337	955 30304	30 32132		•	•		1479 29848
35-39	3 25032	16 29111	194 30749	204 32187	22 33557				439 31459
40-44	1 28680	3 28928	11 31102	41 31868	73 32853	3 33280			132 32290
45-49	1 29808	-	-	4 32796	8 33755	33 33661	-		46 33519
50-54	-	-	-	-	1 32388	2 32388	2 32388	-	5 32388
55-59	-	-	-	-	-	-	-	-	-
60-70	-	-	-	-	-	-	-	-	-
15-70	2387 19994	2476 28989	1360 30340	279 32143	104 33067	38 33564	2 32388	-	6646 26258

Average Age: 27.7

Average Service: 7.3

APPENDIX 14A

Retired Contributors as at December 31, 1987

		Other than Disability Pension				Disability Pension				
	N	lumbe			Pension**	N	umber	<u>c*</u>	_Annua1	Pension**
Age			<u>Total</u>	CFSA	SRBA	<u>Male</u>	Fem	<u>Total</u>	<u>CFSA</u>	<u>SRBA</u>
				(\$)	(\$)				(\$)	(\$)
26-28	2	-	2	9,588	288	-	-	-	-	-
29-31	16	3	19	94,444	4,496	3	-	3	12,060	660
32-34	34	4	38	204,438	17,451	3	1	4	12,372	1,608
35-37	84	9	93	489,547	90,031	8	2	10	27,468	9,252
38-40	342	7	349	2,996,296	253,400	39	2	41	105,504	66,204
41-43	1,115	9	1,124	12,158,344	1,045,863	101	-	101	233,400	220,164
44-46	2,618		2,649	28,228,759	4,370,505	207	1	208	473,460	580,356
47-49	4,118		4,150	41,129,064	11,658,399	319	1	320	843,876	1,073,532
50-52	5,973		6,012	58,400,470	22,782,815	450	1	451	1,181,832	1,774,020
53-55	7,312		7,358	68,793,603	35,394,644	689	2	691	1,859,712	3,005,832
56-58	7,778		7,830	72,576,301	46,683,642	906	4	910	2,356,332	4,272,924
59-61	6,363		6,408	46,002,758	48,103,506	751	3	754	1,992,516	3,928,920
62-64	6,383		6,417	36,401,451	59,247,076	727	2	729	1,747,308	4,090,176
65-67	6,229		6,257	29,810,091	60,608,918	632	3	635	1,618,512	3,924,252
68-70	4,677		4,703	19,353,418	44,887,178	396	1	397	978,732	2,541,924
71-73	3,204		3,256	11,903,277	29,941,822	175	_	175	437,796	1,163,784
74-76	1,707		1,733	5,629,136	15,083,892	56	3	59	131,832	375,936
77 - 79	710	11	721	2,083,240	5,968,212	14	_	14	23,148	74,928
80-82	315	3	318	738,552	2,246,004	4	-	4	5,304	18,432
83-85	128	1	129	240,852	766,380	2	_	2	4,884	14,424
86-88	43	_	43	78,942	253,732	1	_	1	828	3,060
89-91	15	-	15	17,376	57,036		_		020	3,000
	4	-	4	•	•	-	•	-	-	•
92-94	4	<u> </u>	4	11,928	39,960		-			

59,170 458 59,628 437,351,876 389,505,251 5,483 26 5,509 14,046,876 27,140,388

^{* 1031} males and 18 females who were medically discharged under QR&O Art 15.01 Category 3(B), which are cases medically unfit to perform their duties and not employable in the forces, were included among "other than disability".

^{**} CFSA benefits deferred to age 60 as well as SRBA benefits deferred to the earlier of age 60 and the age when age plus service equal 85 are included in these amounts. Benefit amounts also reflect accrued indexation to January 1, 1988 and CPP offsets for ages greater than 64 or for disability pensions where applicable.

APPENDIX 14B

Surviving Spouses* as at December 31, 1987

		Annual	Annual Allowance				
<u>Age</u>	Number	CFSA	SRBA**				
		\$	\$				
22.22		010	10				
20-22	1	912	12				
23-25	11	15,432	1,452				
26-28	10	19,632	1,056				
29-31	29	60,804	8,772				
32-34	43	97,284	33,048				
35 - 37	65	198,948	80,460				
38-40	102	318,804	139,728				
41-43	127	474,228	190,308				
44-46	220	685,068	479,844				
47-49	327	1,074,408	811,956				
50-52	484	1,284,144	1,357,956				
53-55	637	1,748,340	1,978,596				
56-58	908	2,042,976	3,131,496				
59-61	1,043	2,219,028	3,974,052				
62-64	1,437	2,765,184	5,881,248				
65-67	1,547	2,784,156	6,579,636				
68-70	1,269	2,134,584	5,299,152				
71-73	972	1,576,368	4,129,788				
74-76	691	995,304	2,822,844				
77 - 79	375	469,500	1,402,896				
80-82	192	238,584	727,572				
83-85	92	91,476	298,500				
86-88	34	37,716	127,740				
89-91	19	19,224	64,248				
92-94	2	1,128	3,684				
95-97	-	-	-				
98-100	_	_	_				
101-103	-	-	_				
104-106	-	_	_				
107-109							
TOTAL	10,637	21,353,232	39,526,044				

^{*} Six of the surviving spouses are widowers.

^{**} Accumulated indexing includes increase effective January 1, 1988.

APPENDIX 14C

Surviving children and students eligible for allowances as at December 31, 1987

		Annual	Annual Allowance		
<u>Age</u>	Number	<u>CFSA</u>	<u>SRBA</u> *		
0	_	_	_		
1	7	4,512	192		
2	12	6,264	1,152		
2	8	4,488	576		
4	11	5,892	576		
5	26	15,132	4,368		
6	21	15,576	3,708		
7	20	12,960	4,140		
8	29	19,116	5,880		
9	32	20,724	8,916		
10	40	25,812	11,292		
11	51	34,884	19,164		
12	73	54,816	23,400		
13	62	45,348	21,612		
14	108	76,476	35,616		
15	111	74,556	50,064		
16	143	87,576	66,288		
17	176	116,964	82,440		
18	213	129,336	115,752		
19	119	65,952	68,214		
20	77	42,997	44,967		
21	74	35,365	45,749		
22	46	20,051	29,842		
23	30	12,496	20,000		
24	16	5,997	10,762		
	1,505	933,290	674,670		

^{*} Accumulated indexing includes increase effective January 1, 1988.