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**CANADA**  
**DEPARTMENT OF TRADE AND COMMERCE**  
**DOMINION BUREAU OF STATISTICS**  
**TRANSPORTATION & PUBLIC UTILITIES BRANCH**

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**CIVIL AVIATION**  
**IN**  
**CANADA**  
**1938**



OTTAWA  
1939

Price 25 cents



**DOMINION BUREAU OF STATISTICS**  
**TRANSPORTATION AND PUBLIC UTILITIES BRANCH**  
**OTTAWA**

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Dominion Statistician, R.H. COATS, LL. D., F.R.S.C., F.S.S. (Hon.)

Chief, Transportation and Public Utilities Branch, G.S. Wrong, B.Sc.

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CIVIL AVIATION IN CANADA

1938

The statistics in this report are collected from the operators of aircraft with commercial operators' licences and from light aeroplane clubs with the exception of data on licences and accidents which are supplied by the Civil Aviation Division of the Department of Transport. This division has jurisdiction over the licensing of all airports, aircraft pilots and engineers and consequently the licensed aircraft and pilots include private aircraft and pilots.

The commercial companies are divided into two classes, those engaged principally in international flying between Canada and the United States and those engaged exclusively, or almost exclusively, in flying between Canadian stations. A small amount of strictly Canadian flying is done by these international companies and in 1938 the statistics of the Trans-Canada Air Lines were included with international companies because the major portion of its operations was between Vancouver, British Columbia and Seattle, Washington. Experimental flights by the Trans-Canada Air Lines between Vancouver and Winnipeg were made early in 1938 and mail service was extended to Montreal and Toronto in October but it was not until 1939 that passenger service east of Vancouver was inaugurated. Financial statistics were collected from this company and included with those of Canadian companies.

Light aeroplane clubs are subsidized by the Dominion Government and their chief operation is the training of pilots. For flights around the club field and in instruction and practice no statistics are collected of miles flown but for flights from port to port the mileage is collected for aircraft, pilot and passengers. The provincial aircraft are engaged almost solely in forest protection, aerial surveying and similar work and the Dominion aircraft are engaged in inspection work.

Mail carried by aircraft includes mail matter carried under both Canadian and United States postal contracts, a contract in which the means of transport is optional and also some mail matter for private companies. This latter class should be classed as freight and will be in the 1940 report.



A large part of commercial passenger and freight traffic is in connection with mining operations in northern districts where previously the means of transportation was canoe in the summer and dog sleigh in the winter. The numerous lakes in most of the northern mining areas provide landing surfaces in the summer for aircraft equipped with floats and in the winter for aircraft equipped with skis. In Quebec and Ontario the distances from the railways to the mines are not great, but in the western provinces and in the North West Territory some of the distances are hundreds of miles. The air line distance from Waterways on the Northern Alberta railway to the radium mines on Great Bear Lake is around 700 miles and the mail route from Fort McMurray to Aklavik at the mouth of the Mackenzie river is over 1,400 miles.

Because of this characteristic of air transport in Canada the statistics cannot be compared directly with those of air transport in other countries where a large part of the traffic is between stations served also by steam railways, highways or steamships. Also, many countries have extensive international air traffic and the statistics of domestic and international traffic are not segregated.

The investments of Canadian commercial companies amounted to \$8,069,707 which is exclusive of investments by the Dominion Government in airports and airways. During the fiscal year ended March 31, 1938 the Department of Transport expended \$2,341,649 on airports and ground facilities exclusive of assistance to municipalities amounting to \$374,787. Also, the maintenance and operation of airports and airways during the year amounted to \$828,336. Maintenance and operation of meteorological services amounted to \$417,800 and of radio to \$683,784. Only a part of these are chargeable to air transport but no segregation has been made; none of the expenditures by the Dominion Government are included in these tables.

Total investments in civil aviation as at December 31, 1938 including provincial governments, light aeroplane clubs and Canadian commercial companies amounted to \$8,306,864 and including the investment by the Dominion Government on airports and airways of \$2,341,649, for the fiscal year 1937-38 which are the latest data published, the total is \$10,648,513.

Passenger and freight traffic to and from the United States increased but domestic traffic showed a decrease and the total number of revenue passengers carried declined from 110,864 in 1937 to 104,117 and the freight carried declined from 26,279,156 pounds to 21,704,587 pounds. Mail carried under Canadian postal contract increased from 1,323,584 pounds to 1,771,153 pounds and the total including mail carried under United States postal contracts and mail matter carried for individuals increased from 1,450,473 pounds to 1,901,711 pounds.

The number of licensed private pilots increased from 635 for 1937 to 734 but the total number of licensed commercial pilots, limited commercial pilots and transport pilots decreased by only one: there was a shift, however, in each class. The number of licensed air engineers has been increasing each year, the increase in 1938 being 48 or 8 per cent.

The decrease in licensed aircraft was principally in light land planes. The number of planes with gross weight of 2,000 pounds or less decreased from 316 to 222. Those weighing between 2,001 pounds and 10,000 pounds also decreased by 47 but those over 10,000 pounds increased from 9 to 17.

The number of employees increased from 765 in 1937 to 1,047 and the pay roll from \$1,274,020 to \$1,722,649. Total operating expenses rose from \$3,932,096 to \$5,403,562 whereas revenues increased from \$3,234,280 to only \$3,691,224. Thus the operating deficit was increased from \$697,816 to \$1,712,338.

The number of flying members of light aeroplane clubs increased from 1,195 to 1,212 but the number of other members decreased by 26. The number of pupils given instruction by these clubs increased from 1,009 to 1,134 and by commercial companies from 658 to 2,251.

National Defence aircraft were used for most of the aerial surveying, and 102,407 square miles were photographed, 58,957 square miles vertically and 43,450 square miles obliquely. Also, commercial companies reported 13,000 square miles sketched from the air.

The big increase in mail carried was in the western provinces due to the extension of mail service on the Trans-Canada Air Lines. Table 10 shows the mail loaded in each province.

Seventeen persons were killed during the year due to aircraft accidents and 13 injured, including 2 killed and 3 injured in training.

The averages for 1937 in Table 12 have been revised and based on accidents reported to the Civil Aviation Division of the Department of Transport and are directly comparable with the data for 1938.



TABLE I. - STATISTICAL SUMMARY OF CIVIL AVIATION IN CANADA, 1932-1938

Item	1932	1933	
	No.	No.	
<u>General Analysis</u>			
Firms manufacturing aircraft .....	7	7	
Firms chiefly operating aircraft .....	73	87	
Firms using aircraft as auxiliary service .....	4	3	
Aircraft flights made .....	102,219	106,252	
Aircraft hours flown .....	56,170	53,299	
Approximate aeroplane mileage .....	2,786,609	2,733,642	
Approximate float seaplane mileage .....	1,503,157	1,641,911)	
Approximate boat seaplane mileage .....	198,792	99,433)	
Approximate amphibian mileage .....	80,573	63,319)	
Total aircraft mileage .....	4,569,131	4,538,315	
Average flight duration (minutes) .....	33	30	
Pilots carried .....	102,219	106,252	
Passengers and crew carried .....	76,800	85,006	
Total personnel carried .....	179,019	191,258	
Pilots carried one mile. (pilot miles) .....	4,569,131	4,538,315	
Passengers and crew carried one mile (passenger miles)	2,869,799	3,816,862	
Total personnel carried one mile (personnel miles)	7,438,930	8,355,177	
Total freight or express carried (lb.).....	3,129,974	4,205,901	
Total mail carried (lb.) .....	(a) 413,687	(a) 539,358	
<u>Licensed Civil Airports</u>			
Total airports (all types) .....	83	90	
<u>Licensed Civil Aircraft</u>			
Total aircraft (all types) .....	445	345	
<u>Licensed Civil Air Personnel</u>			
Commercial pilots .....	(e)	474	
Limited commercial pilots .....	...	...	
Transport pilots .....	...	...	
Private pilots .....	(e)	405	
Air engineers .....	(e)	403	

(a) Canadian postal contracts.

(b) Carried under Canadian postal contracts, 1,323,584 lbs.

(c) Carried under Canadian postal contracts, 1,771,153 lbs.

(x) Revised.

TABLE I. - STATISTICAL SUMMARY OF CIVIL AVIATION IN CANADA, 1932-1938

1934	1935	1936	1937	1938
No.	No.	No.	No.	No.
6	10	7	(x) 7	8
125	123	116	162	131
3	7	12	10	11
128,031	153,211	160,014	190,403	207,788
75,871	88,451	101,953	126,896	133,168
3,430,475	4,314,192	...	...	...
3,067,162	3,207,910	...	...	...
6,497,637	7,522,102	7,803,942	10,755,524	12,294,088
36	34	38	40	38
128,031	153,211	160,014	190,403	207,788
105,306	177,472	127,937	168,652	195,430
233,337	330,683	287,951	359,055	403,218
6,497,637	7,522,102	7,803,942	10,755,524	12,294,088
6,266,475	7,936,950	12,055,684	17,695,591	18,876,160
12,764,112	15,459,052	19,859,626	28,451,115	31,170,248
14,441,179	17,615,910	25,387,719	26,279,156	21,704,587
(a) 625,040	(a) 1,126,084	(a) 1,161,069	(b) 1,450,473	(c) 1,901,711
101	96	155	158	123
368	380	475	604	471
405	414	380	320	226
...	...	65	129	165
...	...	42	73	130
429	496	559	635	734
461	472	533	595	643

TABLE 2. - OPERATIONS OF CIVIL AIRCRAFT IN CANADA, 1938

		Light Aeroplane Clubs (Non-Scheduled Routes)	Dominion and Provincial Governments (Non-Scheduled Routes)	(1) International (Scheduled Routes)	
Light Aeroplane Clubs .....	Number	22	...	...	
Members - flying .....	"	1,212	...	...	
- other .....	"	1,174	...	...	
Flights of aircraft .....	"	54,782	12,754	8,176	
Hours flown .....	"	20,806	12,100	17,756	
Miles flown .....	"	(2) 24,177	1,063,061	2,749,672	
Average duration of flight .....	Minutes	23	57	130	
Gasoline consumed .....	Gallons	117,317	157,631	855,592	
Lubricating oil consumed .....	"	3,022	4,215	12,741	
Crew carried .....	Number	44,699	13,838	15,128	
Student pilots carried .....	"	10,083	...	...	
Student passengers carried .....	"	19,503	...	...	
Paying passengers carried .....	"	1,999	...	13,441	
Non-paying passengers carried .....	"	7,668	8,699	2,764	
Total personnel carried .....	"	83,952	22,537	31,333	
Crew carried one mile .....	"	(2) 24,177	1,399,746	4,423,334	
Paying passengers carried one mile .....	"	(2) 20,427	...	2,290,683	
Non-paying passengers carried one mile .....	"	(3) ...	1,355,972	1,089,427	
Total personnel carried one mile .....	"	(2) 44,604	2,755,718	7,803,444	
Freight carried .....	Pounds	...	2,081,454	29,552	
Mail carried .....	"	...	...	596,648	
Ton miles - freight .....	Number	...	77,902	7,126	
- mail .....	"	...	...	142,230	
Total ton miles, freight and mail .....	"	...	77,902	149,356	
Pupils given instruction .....	"	1,134	5	33	
Square miles sketched from aircraft .....	"	...	...	...	
Square miles photographed - vertical .....	"	...	(5) 41,750	...	
Square miles photographed - oblique .....	"	...	(5) 28,450	...	
Forest fires detected from the air & reported	"	...	253	4	

(1) Statistics of international flights and Canadian flights of companies engaged principally in international flying.

(2) Station to station only.

(3) Not available.

(4) Carried under Canadian postal contracts, 1938 - 1,771,153 pounds.

(5) Includes surveys by National Defence aircraft.



TABLE 2. - OPERATIONS OF CIVIL AIRCRAFT IN CANADA, 1938

Commercial Companies			Total, All Companies		
(Scheduled Routes)	Canadian		(Scheduled Routes)	(Non-Scheduled Routes)	GRAND TOTAL
	(Non-Scheduled Routes)	Total			
...	...	...	...	...	22
...	...	...	...	...	1,212
...	...	...	...	...	1,174
...	...	132,076	...	...	207,788
...	...	82,506	...	...	133,168
...	...	8,457,178	...	...	12,294,088
...	...	37	...	...	38
...	...	1,727,307	...	...	2,857,847
...	...	43,278	...	...	63,256
55,324	104,837	160,161	70,452	163,374	233,826
...	...	...	...	10,083	10,083
...	...	...	...	19,503	19,503
33,701	54,976	88,677	47,142	56,975	104,117
537	16,021	16,558	3,301	32,388	35,689
89,562	175,834	265,396	120,895	282,323	403,218
5,220,252	5,216,021	10,436,273	9,643,586	6,639,944	16,283,530
5,315,327	3,286,972	8,602,299	7,606,010	3,307,399	10,913,409
103,471	1,424,439	1,527,910	1,192,898	2,780,411	3,973,309
10,639,050	9,927,432	20,566,482	18,442,494	12,727,754	31,170,248
7,868,942	11,724,639	19,593,581	7,898,494	13,806,093	21,704,587
1,198,727	106,336	1,305,063	1,795,375	106,336	(4) 1,901,711
452,381	501,329	953,710	459,507	579,231	1,038,738
131,923	7,514	139,437	274,153	7,514	281,667
584,304	508,843	1,093,147	733,660	586,745	1,320,405
...	...	2,218	...	...	3,390
...	...	13,000	...	...	13,000
...	...	17,207	...	...	58,957
...	...	15,000	...	...	43,450
...	...	111	...	...	368

TABLE 3. - AIRPORTS IN CANADA, 1938 (1)

Kind	Land Only	Landing Surfaces		Total
		Water Only	Land and Water <sup>2</sup>	
	No.	No.	No.	No.
Public.....	12	10	-	22
Public-auxiliary.....	2	-	-	2
Public-temporary.....	17	6	1	24
Dominion Government .....	7	4	-	11
Intermediate .....	1	-	-	1
Provincial .....	-	6	-	6
Private .....	11	24	-	35
Municipal Airports .....	16	5	1	22
TOTAL .....	66	55	2	123

(1) Does not include 57 Dominion Government unlicensed intermediate aerodromes.

TABLE 4. - LICENSED CIVIL AIRCRAFT IN CANADA, DECEMBER 31, 1938

Aircraft	Dominion and Provincial	Private	Light Aeroplane Clubs	Commercial / Canadian	Total
	No.	No.	No.	No.	No.
<u>Gross Weight</u> <sup>x</sup>					
Up to 2,000 lb. ....	31	49	44	98	222
2,001 to 4,000 lb. ....	15	13	1	86	113
4,001 to 10,000 lb. ....	21	4	-	94	119
Over 10,000 lb. ....	-	-	-	17	17
TOTAL .....	65	66	45	295	471
<u>Type</u>					
Sea Boats .....	15	2	1	5	23
Amphibians .....	1	2	-	-	3
Land Planes .....	30	53	36	125	244
Convertible <sup>φ</sup> .....	19	9	8	165	193
TOTAL .....	65	66	45	295	471

/ Includes Canadian licensed aircraft of international companies.  
<sup>x</sup> Total weight of aircraft with supplies and full load.  
<sup>φ</sup> May be equipped with wheels, floats or skis as conditions demand.

TABLE 5. - INVESTMENT IN CIVIL AVIATION IN CANADA, 1938.

Item	Provincial Government	Light Aeroplane Clubs	Commercial <sup>2</sup> Canadian	Total
	\$	\$	\$	\$
Land and buildings .....	7,000	31,942	1,097,483	1,136,425
Aircraft .....	84,267	91,896	5,091,308	5,267,471
Tools and equipment .....	4,750	11,188	759,141	775,079
Furniture and office appliances .....	-	3,918	66,789	70,707
Organization expenditures .....	-	2,196	1,054,986	1,057,182
TOTAL .....	96,017	141,140	8,069,707	8,306,864

<sup>2</sup> Includes Trans-Canada Air Lines.

TABLE 6. - REVENUES AND EXPENSES OF CIVIL AVIATION IN CANADA, 1938

Item	Provincial & Dominion Government	Light Aeroplane Clubs	Commercial <sup>2</sup> Canadian	Total
	\$	\$	\$	\$
Total operating revenues .....	12,209	227,932	3,451,083	3,691,224
Total operating expenses .....	346,444	224,638	4,832,480	5,403,562
Net operating revenues .....	Dr. 334,235 <sup>v</sup>	3,294	Dr. 1,381,397 <sup>v</sup>	Dr. 1,712,338

<sup>2</sup> Includes Trans-Canada Air Lines

TABLE 7. - EMPLOYEES AND SALARIES AND WAGES IN CIVIL AVIATION IN CANADA, 1938.

	Provincial Government	Light Aeroplane Clubs	Commercial <sup>*</sup> Canadian	Total
Employees ..... No.	92	87	868	1,047
Salaries and Wages ..... \$	172,108	97,939	1,452,602	1,722,649
<sup>*</sup> Includes Trans-Canada Air Lines.				

TABLE 8. - AIR TRAFFIC IN CANADA, BY PROVINCES, 1938.

Origin of Traffic	Passengers Carried					Total
	Light Aeroplane Clubs		Provincial & Dominion Governments	Commercial Companies		
	Local and Student Passenger	Station to Station		Inter- national <sup>1/</sup>	Canadian	
	No.	No.	No.	No.	No.	No.
Prince Edward Island .....	...	...	6	...	166	172
Nova Scotia .....	1,144	...	4	...	1,109	2,257
New Brunswick .....	500	...	655	...	1,709	2,864
Quebec .....	1,719	50	133	4,246	23,259	29,407
Ontario .....	14,047	51	6,469	110	38,493	59,170
Manitoba .....	5,589	3	1,118	1,844	7,592	16,146
Saskatchewan .....	2,569	27	150	106	9,120	11,972
Alberta .....	2,436	...	119	103	7,115	9,773
British Columbia .....	1,035	...	40	2,894	6,281	10,250
Yukon and Northwest Territories	...	...	...	45	10,357	10,402
Foreign Countries .....	...	...	5	6,857	34	6,896
TOTAL .....	29,039	131	8,699	16,205	105,235	159,309
1/ Start and finish of trip at same field.						

TABLE 9. - FREIGHT AND EXPRESS LOADED, 1938.

Origin of Traffic	Provincial Government	Commercial Companies		Total
		International <sup>1/</sup>	Canadian	
	Lb.	Lb.	Lb.	Lb.
Prince Edward Island .....	...	...	768	768
Nova Scotia .....	...	...	3,266	3,266
New Brunswick .....	...	...	3,607	3,607
Quebec .....	...	2,904	2,676,345	2,679,249
Ontario .....	1,979,594	3,470	8,424,900	10,407,964
Manitoba .....	101,860	930	2,988,159	3,090,949
Saskatchewan .....	...	114	1,931,080	1,931,194
Alberta .....	...	90	1,335,379	1,335,469
British Columbia .....	...	3,194	338,373	341,567
Yukon and Northwest Territories	...	...	1,890,384	1,890,384
Foreign Countries .....	...	18,850	1,320	20,170
TOTAL .....	2,081,454	29,552	19,593,581	21,704,587

TABLE 10. - MAIL LOADED, 1938

Origin of Traffic	Commercial Companies		Total
	International <sup>1/</sup>	Canadian	
	Lb.	Lb.	Lb.
Prince Edward Island .....	...	29,419	29,419
Nova Scotia .....	...	127,602	127,602
New Brunswick .....	...	127,602	127,602
Quebec .....	63,176	137,497	200,673
Ontario .....	3,509	267,621	271,130
Manitoba .....	207,254	195,204	402,458
Saskatchewan .....	37,586	106,398	143,984
Alberta .....	13,241	173,200	186,441
British Columbia .....	113,075	65,720	178,795
Yukon and Northwest Territories	515	74,800	75,315
Foreign countries .....	158,292	...	158,292
TOTAL .....	596,648	1,305,063	x 1,901,711

<sup>\*</sup> Carried under Canadian postal contracts, 1,771,153 pounds.

<sup>1/</sup> Statistics of international flights and Canadian flights of companies engaged principally in international flying.



TABLE 11. - CIVIL AVIATION ACCIDENTS, 1938

	Accidents Involving Death or Injury	Damage to Aircraft Only	Total Accidents
Scheduled Routes .....	6	28	34
Non-scheduled Routes .....	6	28	34
Training .....	3	18	21
TOTAL .....	15	74	89

  

PERSONS KILLED AND INJURED						
	Killed			Injured		
	Pilots	Passengers	Total	Pilots	Passengers	Total
Scheduled Routes ...	6	5	11	1	2	3
Non-scheduled Routes	2	2	4	3	4	7
Training .....	2	-	2	1	2	3
TOTAL .....	10	7	17	5	8	13

TABLE 12. - OPERATION AND ACCIDENT AVERAGES IN AVIATION IN CANADA

Operation Averages		1938	1937
Duration of flight .....	Hours	.641	.666
Length of flight .....	Miles	59.2	56.5
Paying passengers per flight .....	No.	.5	.6
Length of paying passenger journey .....	Miles	104.8	114.2
Aircraft miles per gallon of fuel .....	No.	4.3	4.8
Aircraft miles per gallon of lubricating oil .....	No.	194	167
<u>Accident Averages</u>			
Accidents per 1,000 aircraft flights .....	No.	.428	.436
Accidents per 1,000,000 aircraft miles .....	No.	7.239	7.716
Fatalities per 1,000 aircraft flights .....	No.	.0818	x .0735
Fatalities per 1,000,000 aircraft miles .....	No.	1.383	x 1.302
Passengers killed per 1,000,000 passenger miles...	No.	.470	x .482
Passengers injured per 1,000,000 passenger miles..	No.	.537	x .345
Crew killed per 1,000,000 crew miles .....	No.	.614	x .502
Crew injured per 1,000,000 crew miles .....	No.	.307	x .430
x Revised.			



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