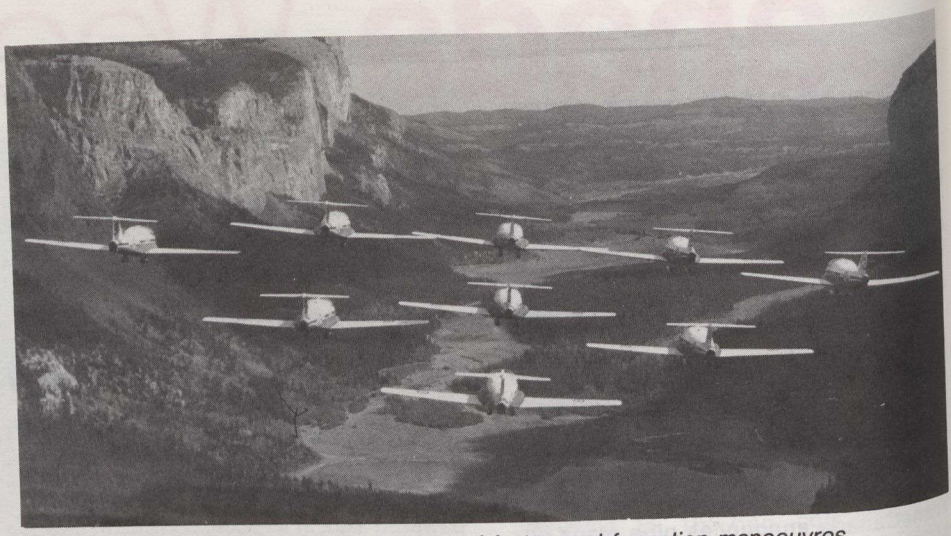
selected after competitive flying tryouts held each November.

The nine pilots and an administration officer are assisted by a ground crew of specialists in aeroengine, airframe, instrument, communication and safety systems. In addition, two co-ordinators handling public information duties follow the team and act as commentators during the air shows.

Leading the Snowbirds 1984 team is Major George Hawey of Quebec City, Quebec. Commanding Officer Major Hawey is a veteran Canadian Forces pilot and is now in his second year as Commanding Officer/Team lead and his fourth year as a Snowbird.

Snowbirds 1984 Schedule

June	
2,3	London, Ontario
9	Gimli, Manitoba
10	Minot AFB, North Dakota
16	Prince Albert, Saskatchewan
17	CFB Moose Jaw, Saskatchewan
23	CFB Chatham, New Brunswick
24	CFB Bagotville, Quebec
26	CFS Chibougamau, Quebec
28	Quebec City, Quebec
30	CFB North Bay, Ontario
July	
1	Ottawa, Ontario
4	Allentown, Pennsylvania
7	Trois Rivières, Quebec
8	Valleyfield, Quebec
10	Baddeck, Nova Scotia
12	Peterborough, Ontario
14	CFB Borden, Ontario
15	Sault Ste. Marie, Ontario
21, 22	Everett, Washington
25	North Battleford, Saskatchewan
29	Kelowna, British Columbia
August	
4, 5	Red Deer, Alberta
7	Prince George, British Columbia
10,11,12	Abbotsford, British Columbia
18	Alexandria, Ontario
19	Quebec City, Quebec
21	McAdam, New Brunswick
23	Charlo, New Brunswick
25	CFB Greenwood, Nova Scotia
26	CFB Summerside, Prince Edward Island
28	Cornwall, Ontario
31	Toronto, Ontario
September	
1,2,3	Toronto, Ontario
8	CFB Portage La Prairie, Manitoba
15,16,	Reno, Nevada
19	Sacramento, California
22,23	Salinas, California
29,30	CFB Shearwater, Nova Scotia
October	
2	Moncton, New Brunswick
6,7	Kitchener, Ontario
9	Vance AFB, Oklahoma
13,14	Harlingen, Texas



The Snowbirds' routine includes a series of fast-paced formation manoeuvres.

Computer-designed maps easier to up-date

The Ontario mapping industry has joined together to develop a digital library of topographic information that will make maps easier to up-date.

Nine map-making companies, Bell Canada, the Ontario Government, Oxford County and the cities of Cambridge and Woodstock in Ontario, are working together on the $5.3-million, three-year project.

Computerized maps are created by assigning numerical values to physical features of the earth's surface. The information can be transferred on to graphics terminals.

"It's much like computer-aided design," said Larry Monaghan, vice-president of surveying and mapping at Marshall, Macklin and Monaghan of Toronto, one of the companies involved with the project.

He said his company has increased productivity since it started designing maps with computers three years ago. "That data can be used to produce maps with different overlaps or at different scales much more quickly."

The new database should help the Ontario industry to double last year's revenue of $35-million by 1989, according to Donald McLarty, president of the Canadian Association of Aerial Surveyors.

The Canadian industry could increase annual revenue to $170-million by 1989, compared with $100-million last year, by marketing abroad its systems and applications of computer-aided design, Mr. McLarty said.

The project has a number of applications:
— Emergency vehicles could get information instantly on how to get to a caller most quickly;
— Forest firefighters could use computerized weather maps to plan their strategy;
— Conservation authorities could improve drainage basin analysis and flood prediction;
— Municipalities could update zoning, ownership and utility maps more easily and cheaply;
— Utilities will be able to share information to find one another's underground cables.

TransCanada announces pipe plans

TransCanada PipeLines Ltd. of Calgary plans an $811-million expansion to its natural-gas transmission system to move Canadian gas exports to markets in the northeastern United States.

The company said it has filed with the National Energy Board for the expansion, which would involve installation of 446 kilometres of pipeline and 25 compressor units on its system over three years, beginning in 1986.

The expansion would be required to move about 24-million cubic metres per day of additional natural-gas export volumes approved by the federal government in January 1983 to Niagara Falls, Ontario. The TransCanada system extends to Eastern Canada from the Alberta-Saskatchewan border.

TransCanada already has two parallel pipelines running through Northern Ontario and is working on a third. The proposed lines would bring gas through Saskatchewan, Manitoba and Ontario to Niagara Falls, where it would link up with US systems.