

plished through airport control, approach control and area control services, together with flight information, alerting for search and rescue, customs notification and aircraft identification. These services are described below.

Airport Control is designed particularly to provide air traffic control service in the vicinity of major civil airports where the volume and type of aircraft operations, weather conditions and other factors indicate its need in the interests of safety. The service includes the control of pedestrians and vehicles on the manoeuvring area of the airport. Control is effected by means of direct radiotelephone communication or visual signals to aircraft and surface vehicles on and in the vicinity of controlled airports. The control towers are located at Whitehorse, Y.T.; Victoria, Port Hardy and Vancouver, B.C.; Lethbridge, Calgary and Edmonton, Alta.; Saskatoon and Regina, Sask.; Winnipeg, Man.; the Lakehead, Windsor, London, Toronto, Toronto Island, Ottawa and North Bay, Ont.; Montreal, Cartierville, Quebec, Val d'Or, Baie Comeau and Sept Îles, Que.; Moncton and Saint John, N.B.; Sydney, N.S.; Gander, Nfld.; and Frobisher, N.W.T. Most of these control towers are in continuous operation but a few provide 16-hour daily service only.

Approach Control service consists of the provision of standard IFR separation to aircraft operating in accordance with Instrument Flight Rules within the local approach control area, which is generally within a 30-mile to 40-mile radius of the airport. Such service is provided by approach control units at Vancouver, B.C.; Edmonton and Calgary, Alta.; Saskatoon and Regina, Sask.; Winnipeg, Man.; the Lakehead, Toronto, Ottawa and North Bay, Ont.; Quebec and Montreal, Que.; Gander, Nfld.; and Frobisher, N.W.T.

Area Control is designed particularly to provide air traffic control service to aircraft operating within controlled airspace during weather conditions which prevent a pilot from seeing other aircraft or obstructions and necessitate his reliance on instruments to conduct the flight. Control centres are located at Vancouver, B.C.; Edmonton, Alta.; Winnipeg, Man.; Toronto, Ont.; Montreal, Que.; Moncton, N.B.; and Goose Bay and Gander, Nfld. Each centre is connected with the control towers, radio range stations and operations offices within its area by means of an extensive system of local and long-line interphone or radio circuits, and through the radio communication facilities available at these offices to all aircraft requiring area control service. Each area control centre is similarly connected with the adjacent centres, including centres in the United States, for the purpose of co-ordinating the control of aircraft operating through more than one control area. This communications system permits each centre to maintain a continuous detailed record of the movements of all aircraft operating in accordance with the Instrument Flight Rules, and a general record of the movements of all aircraft operating in accordance with the Visual Flight Rules within its control area. In addition to providing area control service to aircraft operating within the controlled airspace over Newfoundland, the Goose Bay and Gander control centres provide this service within the airspace over approximately one-half of the North Atlantic Ocean. The Vancouver area control centre also provides control service over the Pacific Ocean within the Vancouver Oceanic Control Area. Area control service is provided for approximately 16,000 miles of airways and control channels.

Flight Information provides advice and information useful for the safe and efficient conduct of flight, including weather reports and forecasts, field condition reports, data concerning aids to navigation, traffic information, refuelling and transportation facilities and other related data of assistance to the pilot in planning or conducting a flight. Such service is provided by all air traffic control units but particularly by the eight area control centres.

Alerting for Search and Rescue is designed to ensure that the appropriate organizations are notified of aircraft in need of search and rescue aid and otherwise to assist such organizations, as required. Area control centres are responsible for notifying these organizations promptly of non-arrival at destination of any aircraft for which a flight plan or flight notification has been received. This requires the maintenance and constant supervision of a continuous record of active flights to ensure that non-arrival of any aircraft is detected immediately. The service is available to any pilot who files either a flight plan or a flight notification with any communications agency of the Air Services of the Department or directly with one of the area control centres or control towers.

Customs Notification Service facilitates the routine notification of the appropriate customs agency by pilots who plan to cross the Canada-United States boundary. The Air Traffic Control communications system and units concerned therewith forward pilot requests to notify the customs officer at the airport of destination.

Aircraft Movement Information Service is provided by area control centres to assist the Department of National Defence in establishing the identification of all aircraft operating within specified areas.

The number of controlled operations in Canada during 1959 was 3,055,533.