

AVIATION OCCURRENCE REPORT

LOSS OF SEPARATION BETWEEN

CYPRESS JETPROP CHARTER LTD.
CONVAIR CV580 C-GTTG

AND

CANADIAN REGIONAL AIRLINES
DE HAVILLAND DHC-8 C-GTAI

VANCOUVER, BRITISH COLUMBIA 8 NM S
11 MARCH 1997

REPORT NUMBER A97P0057

The Transportation Safety Board of Canada (TSB) investigated this occurrence for the purpose of advancing transportation safety. It is not the function of the Board to assign fault or determine civil or criminal liability.

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Summary

The Convair 580, call sign REGS 33, was inbound to Vancouver International Airport from the Abbotsford, British Columbia, airport on an instrument flight rules (IFR) flight at 4,000 feet above sea level (asl) and on an assigned heading of 260 degrees magnetic. At 1641 Pacific standard time (PST), a Canadian Regional Airlines de Havilland DHC-8, flight number 1255 (CDR 1255), took off from runway 08 at Vancouver International Airport, on an IFR flight to Victoria, and turned to an assigned heading of 140 degrees magnetic; Vancouver departure control then cleared CDR 1255 to 4,000 feet asl. At 1643, the Vancouver departure controller realized that the two aircraft were in conflict and he immediately instructed REGS 33 to turn left to 170 degrees magnetic and CDR 1255 to descend to 3,000 feet asl. The spacing between the aircraft was reduced to 0.75 nautical miles (nm) horizontally and 400 feet vertically when the required minimum is either 3 nm horizontally or 1,000 feet vertically. There was no risk of collision since both aircraft were in visual meteorological conditions, and each flight crew had the other aircraft in sight.

Other Factual Information

¹ All times are PST (Coordinated Universal Time minus 8 hours) unless otherwise noted.

The Convair 580 had a crew of two pilots and a Transport Canada (TC) inspector in the jump seat conducting a pilot proficiency check on the pilot-in-command. The flight was on the return leg of an IFR round-robin flight between the Vancouver and Abbotsford airports. Before departing Vancouver, at about 1535, the Convair 580 crew had filed an IFR flight plan indicating the planned itinerary, the aircraft's true airspeed of 295 knots, and the call sign of REGS 33. After the planned approaches at Abbotsford were completed, the aircraft was cleared by air traffic control (ATC) to the Vancouver VORTAC (very high frequency omnidirectional range tactical air navigation aid) at 4,000 feet asl, via the Abbotsford non-directional beacon (NDB).

The Canadian Regional DHC-8 was on a scheduled IFR flight from Vancouver to Victoria, via the Vancouver VORTAC and the "DUNCN THREE" arrival procedure, with a flight-planned true airspeed of 236 knots. Shortly after take-off, and while heading 140 degrees magnetic, the aircraft was cleared to maintain 4,000 feet asl. At that time, the two aircraft were on converging tracks and had been cleared to the same altitude. When the aircraft first appeared on the controller's indicator module, they were about 16 nm apart. At 1643, when the aircraft were 3 nm and 400 feet apart, a loss of separation occurred. The Vancouver departure controller realized that the two aircraft were in conflict moments before the loss of separation occurred, and he immediately instructed REGS 33 to turn left to 170 degrees, and CDR 1255 to descend to 3,000 feet asl. Although these instructions began to correct the conflict, the spacing between the aircraft was reduced to 0.75 nm and 400 feet.

As a Canadian air carrier, Cypress Jetprop Charter Ltd. normally uses the approved radio telephony call sign of "SKYBIRD," followed by the flight number. For this occurrence, because a TC inspector was conducting a pilot proficiency check, the flight was operating under the call sign of "REGS," followed by the inspector's personal number "33". TC inspectors commonly employ the REGS call sign as a way to alert ATC that they are conducting a flight test. Some controllers associate the REGS call sign with smaller, slower commuter aircraft rather than with larger, faster aircraft such as the Convair.

The Vancouver departure controller had 17 years of ATC experience and 7 years within the unit, and was licensed and qualified for the job. He had been working the swing shift (1000 -1800) for the previous two days, which had been preceded by four days off. He had been in the south departure controller position for about 45 minutes when the loss of separation occurred.

The ATC equipment was working normally, and there was an unrelated navaid problem with the instrument landing system (ILS) on runway 08L. The flight progress strips were up-to-date and in place although their placement on the left side of the controller's indicator module (IM) may not have been conducive to an easy scan of the display. Staffing at the time was normal, the work load was at a moderate pace, and its complexity was assessed as heavy. The departure sector is normally staffed by both a data controller and a radar controller; however, the radar controller is the only person who can fully monitor the pace and intensity of traffic in the departure sector. Because of requirements to engage in non-control activities, the data controller is generally unable to maintain a mental "picture" of the traffic in the departure sector. The departure controller was working between eight and ten aircraft at the time and, of those,

two aircraft required extra attention. The first was a departure from the Boundary Bay airport that involved an easterly climb to 7,000 feet asl in the departure sector; the second was another Canadian Regional flight, which the departure controller was routing around an area of bad weather.

The loss of separation occurred in class "C" airspace, about two nautical miles southeast of the Vancouver VORTAC. At the time of the occurrence, runway 08R was in use at the Vancouver airport and the standard procedures in effect were that arrivals were cleared to descend to 8,000 feet asl, while departures were cleared to climb to 7,000 feet asl until clear of traffic. These procedures ensure that opposing traffic will have a minimum of 1,000 feet of vertical separation. In an exception to these procedures, an IFR aircraft inbound from Abbotsford, below 8,000 feet asl, would be routed through the Vancouver departure area at the altitude requested by the pilot. This arriving traffic, which might be on a flight track opposing departing traffic in the same sector, would be placed under the authority of the departure controller rather than that of the arrival controller.

Since aircraft speed is not normally used by departure controllers as a means of establishing initial separation on departure, the departure controller did not attend to the speed display in the aircraft data block; therefore, he did not assimilate that REGS 33 was indicated on the ATC flight data strip as a relatively fast Convair 580. He assumed that the REGS 33 call sign referred to a small, slow type of aircraft, with a speed in the order of 140 to 160 knots, and he predicated the separation between the two aircraft on that false assumption. According to the recorded radar information, REGS 33 was cruising at 220 knots and CDR 1255 was climbing at 160 knots. The loss of separation occurred before the controller recognized that his original plan of separation was inadequate.

Analysis

Air traffic controllers sometimes form mental images of recurring call signs; they associate a certain type and speed of aircraft with the particular call sign they hear. When this happens, they may not assimilate all the information from the data strips. Frequent exposure to TC inspection flights leads some controllers to associate the generic REGS call sign with smaller, slower aircraft.

The departure controller, responsible for an arriving aircraft that was traversing the departure sector at an altitude much lower than the standard of 8,000 feet asl, thought that he was dealing with a type of aircraft that had an airspeed comparable to that of the departing flight CDR 1255 (about 160 knots), and he established his separation strategy accordingly. It is likely that he was distracted by the aircraft departing from Boundary Bay, and in particular by the second Canadian Regional flight, which was encountering bad weather and which needed to be re-routed. As a consequence, it is likely that his attention became channelized and he did not recognize the developing conflict between CDR 1255 and REGS 33. The significant difference between REGS 33's anticipated and actual airspeed had critically affected the rate of closing. Because the two aircraft had been cleared to the same altitude with the expectation that their tracks would not intercept with less than the minimum radar separation, the controller did not recognize the impending conflict in time to prevent the loss of separation.

Findings

1. A loss of separation occurred; however, there was no risk of collision as both pilots had each other in sight.

2. The departure controller's airspace separation plan was based on his expectation that both aircraft would operate at about the same airspeed, as he associated REGS 33 with slower, smaller aircraft.
3. The departure controller did not observe the speed of the Convair displayed in the radar data block and in the ATC flight data strip.
4. An aircraft that had departed from Boundary Bay and the routing of another aircraft around an area of bad weather are likely to have distracted the departure controller, causing him to channelize his attention, and to miss the developing conflict between the two occurrence aircraft.

Causes and Contributing Factors

The loss of separation occurred because the departure controller based his separation strategy on the Convair being slower than it actually was, even though the proper airspeed information was available from the radar-displayed data block and the ATC flight data strip. Contributing to the occurrence were two aircraft that required special attention and may have distracted the controller.

This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board, consisting of Chairperson Benôt Bouchard, and members Maurice Harquail, Charles Simpson and W.A. Tadros, authorized the release of this report on 06 March 1998.

Appendix A



