

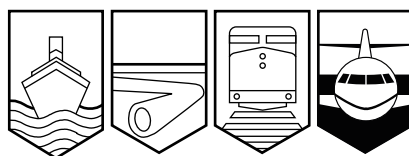
Transportation Safety Board
of Canada



Bureau de la sécurité des transports
du Canada

AVIATION INVESTIGATION REPORT

A00W0062



RUNWAY INCURSION

BETWEEN

ALBERTA CITYLINK

BRITISH AEROSPACE JETSTREAM 31-12 C-FBIJ

AND

AIR BC LIMITED

DE HAVILLAND DHC-8-311 C-GABP

CALGARY INTERNATIONAL AIRPORT, ALBERTA

6 MARCH 2000

Canada

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.

Aviation Investigation Report

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Summary

The Jetstream 31, serial number 817, with one pilot on board, was being repositioned from the main passenger terminal at the north end of Calgary International Airport to the Avitat facility located at the south side of the airport. Prior to taxiing, the pilot received and acknowledged taxi instructions to the Avitat via taxiways Golf, Charlie, and Xray, and instructions to hold short of runway 28. As the aircraft approached the hold line of runway 28, the ground controller cleared the aircraft to cross the runway and taxi on Charlie and Xray to the Avitat. After crossing runway 10/28, the pilot continued taxiing straight ahead which placed the aircraft on taxiway Charlie 2. As the aircraft approached the intersection of taxiway Charlie 2 and runway 34, the pilot saw the runway lights and applied the brakes just as the ground controller directed the aircraft to stop. The aircraft came to a stop with the nose protruding just beyond the runway edge. At the same time, an Air BC Dash 8 was landing on runway 34. The tower controller instructed the Dash-8 to stop as soon as possible. The Dash 8 came to a stop about 1,000 feet before reaching taxiway Charlie 2. The Jetstream was cleared to turn around and taxi on Charlie 2 to Charlie, and south on Charlie. The Dash 8 was cleared to the main terminal via Charlie 2, Charlie, and Charlie Delta.

Ce rapport est également disponible en français.

Other Factual Information

The Jetstream had completed a flight from Cranbrook, British Columbia, to Calgary, and had parked at gate 1 of the Calgary International Airport terminal to off-load passengers. The first officer disembarked at the gate. The captain received and acknowledged taxi instructions to the south end of the airport. As he was approaching runway 10/28, he selected reverse thrust to slow the aircraft, which caused snow to be blown onto the wind screen. At about the same time, the ground controller cleared him to cross runway 28. As the aircraft taxied across runway 28, the pilot reached across the cockpit to the lower right-hand panel to activate the wind screen wipers. The pilot turned on the wipers momentarily and then turned them off. When he looked outside the cockpit again, he did not notice that he was on the wrong taxiway; he missed the taxiway and do-not-enter signs. He also did not notice the runway 34 sign as he passed the snow-covered stop line. The pilot was familiar with the Calgary International Airport layout.

The pilot of the Dash 8 was landing after completing an ILS (instrument landing system) approach. The captain had the runway in sight at about 700 feet above ground level (agl). During the final approach, neither pilot of the Dash 8 saw the (white) Jetstream. The Dash 8 was stopped about 1000 feet before reaching taxiway Charlie 2.

On the morning of March 6 the ceiling and visibility were reduced because of snow and low cloud. At 0738 mountain standard time¹ the weather office issued the following special observation:

Wind 050 degrees magnetic at 3 knots, visibility 1 statute mile (sm), RVR (runway visual range) runway 16 – 6,000 feet plus, RVR runway 28 – 5,500 feet, light snow, 700 feet overcast, remarks – snow 3/8, strato cumulus 5/8.

At 0755, about four minutes after the runway incursion, another special observation was issued:

Wind 050 degrees magnetic at 4 knots, visibility 3/4 sm, RVR runway 16 – 4,000 feet, RVR runway 28 – 5,000 feet, light snow, variable ceiling of 600 feet, remarks – snow 8/8.

The ambient light conditions were dull, early-morning daylight. Snow-clearing operations were underway and priority was being placed on clearing the runway centre lines. The taxiways were reported as partially snow-covered, and braking was reported as poor on the snow-covered portions. Airport maintenance personnel reported that the taxiway and runway signs were clear of snow and illuminated.

When runway 34 is in use, normal traffic flow from the main terminal to runway 34 or the south end of the airport is via taxiways Golf and Charlie. Aircraft landing on runway 34 use one of the short taxiways to exit the runway, and then are routed to the terminal via taxiway Charlie and Charlie Delta. When travelling south, taxiway Golf ends at its intersection with runway 10/28

¹ All times are mountain standard time (Coordinated Universal Time minus seven hours) unless otherwise noted.

and taxiway Charlie. Directly in line with taxiway Golf is the one-way taxiway Charlie 2 (see Appendix A). Taxiway Charlie 2 is one-way only, and is to be used as a runway exit by aircraft which have landed on runway 34. International do-not-enter signs are located at the east entrance to taxiway Charlie 2. The signs are illuminated, red and white, and made of reflective material. The area where taxiways Golf, Charlie, Charlie 2, and runway 10/28 converge was identified by some NAV CANADA and Calgary Airport Authority staff as being a known potential area of confusion, especially for crews not familiar with the airport layout. During the investigation, NAV CANADA and Calgary Airport Authority staff reported that there have been several incidents where aircraft instructed to taxi from Charlie 2 and Charlie northbound taxied from Charlie 2 onto Golf. Controllers also reported that they have provided direction to pilots who appear to be taxiing the wrong way but who, when reminded, can turn onto the correct taxiway without having to backtrack, due to the large paved area at the intersecting taxiways.

As early as 1986 Calgary International Airport was experiencing problems with aircraft inadvertently taxiing southbound onto taxiway Charlie 2. The airport authority then configured the taxiway with dual lens blue and red lights in an attempt to curtail such occurrences. However, this configuration was contrary to Aerodrome Standards. The lighting was subsequently changed to unidirectional blue, and new, high-visibility, fibre-optic signs were installed.

Analysis

The first officer disembarked at the main terminal, leaving the captain to taxi the aircraft to the south side of the airport. In good weather conditions, this would probably not have been a problem. However, since the captain needed to use the wind screen wipers while manoeuvring, he was required to lean across the cockpit, taking his attention away from his primary task of taxiing the aircraft. The operation of the wind screen wipers was carried out at a critical moment, and he missed the turn onto taxiway Charlie and the do-not-enter signs for Charlie 2.

Calgary Airport Authority, Transport Canada, and NAV CANADA are aware that the Charlie 2 and Charlie intersection is a known confusion area. Numerous meetings and discussions have taken place to try to improve the situation at this intersection.

Findings as to Causes and Contributing Factors

1. The pilot was distracted from his primary task when he activated the wind screen wipers and inadvertently entered taxiway Charlie 2.
2. The pilot was taxiing without the assistance of a second crew member.
3. The use of reverse thrust caused snow to be blown onto the wind screen, thus requiring the use of the wind screen wipers.

Safety Action Taken

In the months preceding and following this occurrence, NAV CANADA met with airport authorities and clients across Canada to discuss and study runway incursion problems. Upon completion of the study, NAV CANADA plans to make recommendations to reduce or eliminate these types of mishaps. TC participated in this study. In July 1999, TC formed a sub-committee of the National Civil Aviation Safety Committee to study further the issue of runway incursions. The final report of the sub-committee has been published (as *National Civil Aviation Safety Committee, Sub-Committee on Runway Incursions, Final Report*, September 14, 2000); it contains 23 recommendations for immediate and long-term action to address the issue of runway incursions.

This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board authorized the release of this report on 20 December 2000.

Appendix A - Airport Diagram and Aircraft Positions

