

AVIATION OCCURRENCE REPORT

RISK OF COLLISION

**BETWEEN AIR ALLIANCE
DEHAVILLAND DHC-8-102 C-FGRY
AND INTER CANADIEN FOKKER F.28 MK 1000 C-FCRI
QUEBEC CITY AIRPORT/JEAN LESAGE INTERNATIONAL
06 DECEMBER 1994**

REPORT NUMBER A94Q0220

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 OCCURRENCE REPORT

**RISK OF COLLISION
BETWEEN**

**AIR ALLIANCE
DEHAVILLAND DHC-8-102 C-FGRY**

AND

**INTER CANADIEN
FOKKER F.28 MK 1000 C-FCRI**

QUEBEC CITY AIRPORT/JEAN LESAGE INTERNATIONAL

06 DECEMBER 1994

REPORT NUMBER A94Q0220

Summary

A Fokker 28 was holding on runway 06 while a Beechcraft 1900 was taxiing on the same runway. In addition, a Dash 8 was on final for runway 06. Because the Beechcraft was slow to exit the runway, the controller trainee asked the Fokker to exit the runway to allow the Dash 8 to land.

The Beechcraft exited the runway while the Dash 8 was on short final. The controller trainee cleared the Dash 8 for landing when the Fokker was not yet off the runway. The pilot-in-command of the Dash 8 saw the navigation lights of the Fokker and executed a missed approach.

Ce rapport est également disponible en français.

Factual Information

It was dark, and Quebec City Airport, Quebec, was under the influence of a low-pressure system with ceilings at 200 feet and visibility of 2,600 feet in fog.

Runway 06 was in use and aircraft were executing ILS approaches. Traffic was light. Only a Beechcraft 1900 - Bizex 954 and a Dash 8 - AAQ125 were on approach. A Fokker 28 - ICN 1668 was holding for departure.

Due to poor visibility, runway 06 was not visible from the control tower. The controllers had two radar screens providing RAMP (Radar Modernization Project) information, which clearly showed the aircraft on approach for runway 06. There was no ground radar. Five controllers were on duty at the time of the occurrence: at airport control, there were one controller-instructor, one controller trainee, one ground controller, one co-ordinator, who was not in the tower when the incident occurred, and one operations support specialist. There was no supervisor.

After the Beechcraft landed, the crew of the Fokker lined up their aircraft on the runway; at that time, the Dash 8 was on final and seven nautical miles (nm) out. The crew of the Beechcraft was not familiar with the airport, and they were taxiing slowly towards taxiway Alpha.

While the Beechcraft was still taxiing on the runway and the Dash 8 was at 3 nm, the controller trainee asked the crew of the Fokker to exit the runway via taxiway Golf. As another aircraft was there already, the Fokker headed for taxiway Hotel, located 1,600 feet from the threshold of runway 06. This manoeuvre was confirmed by the controller trainee.

The three controllers were closely following the Beechcraft's progress. When the Dash 8 was at 1 nm, the Beechcraft confirmed that it had exited onto taxiway Alpha. The controller trainee cleared the Dash 8 to land when it was 1/2 nm out and the Fokker was approaching taxiway Hotel.

On crossing the runway threshold at 100 feet above ground level (agl), the pilot-in-command of the Dash 8 saw the navigation lights of the Fokker, which was still on the runway. He immediately executed a missed approach and flew over the Fokker, which at that time was at the usual touchdown point for an ILS approach.

The controller trainee had 24 years' experience as a terminal controller. He had recently started training as an airport controller. His progress was normal. The controller-instructor had known the controller trainee for several years and considered him very competent.

Air traffic control takes place in a complex environment involving time constraints, multiple tasks, and teamwork. It involves the processing of information presented simultaneously via visual and auditory means. Controllers not only must know their jobs but also

must be able to solve problems effectively. They have to adapt workload management strategies for taking action within critical timeframes.

Air traffic control requires that information be visualized and manipulated in two dimensions, but processed in three dimensions. Controllers must rapidly and correctly interpret the changing information received from radar screens, flight progress strips, and communications with flight crews and other controllers. They act on that information while complying with regulations and established procedures and safely expediting air traffic.

Analysis

At the time of the occurrence, the three controllers were alert at their stations and were not disturbed by other environmental factors. Due to meteorological conditions, the controllers could not see runway 06 or the 06 threshold. Consequently, they could not observe the movements of the three aircraft involved. However, the progress of the Dash 8 could be observed on the RAMP radar screens.

The controller trainee's first action plan was to allow the Beechcraft to land, the Fokker to line up on the runway and take off as soon as the Beechcraft was off the runway, then the Dash 8 to land. But because the Beechcraft crew were unfamiliar with the airport and visibility was reduced by fog, they took more time than expected to clear the runway. This changed the controller trainee's original action plan: the Fokker at the runway threshold could not take off, and the Dash 8 on final could not land.

The new plan of action was to have the Fokker exit the runway as quickly as possible. This plan did not work because another aircraft was already on taxiway Golf. The Fokker crew then specified that they were taxiing to taxiway Hotel, which is 1,600 feet from the 06 threshold, and that they would call back when they were clear of the runway. The controller trainee confirmed this information. However, although he confirmed this information, it appears that he did not assimilate it correctly, because the Dash 8 was less than one minute from landing and the Fokker needed a similar length of time to move to taxiway Hotel. A new action plan was needed.

It does not appear that the controller trainee correctly processed the information received from the Fokker. In addition, during that period, the attention of the controller trainee and controller-instructor was focused on the Beechcraft. Convinced that the Fokker had exited the runway, the controller trainee cleared the Dash 8 to land. The alertness of the Dash 8 pilot-in-command as well as the crew of the Fokker prevented a serious accident.

Findings

1. Meteorological conditions hampered the visual monitoring of traffic on runway 06.
2. Radar information permitted monitoring of the Dash 8.
3. The delay caused by the Beechcraft altered the sequence of events planned by the controller trainee.
4. The controller trainee did not correctly visualize the manoeuvre contemplated by the Fokker crew.
5. The attention of the three controllers was on the Beechcraft.
6. The controller trainee cleared the Dash 8 to land while the Fokker was on the runway.

Causes and Contributing Factors

Due to poor processing of information, the Dash 8 was cleared to land while the Fokker was still on the runway. Reduced visibility was a contributing factor in the occurrence.

This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board, consisting of Chairperson, John W. Stants, and members Zita Brunet and Hugh MacNeil, authorized the release of this report on 26 July 1995.