Transportation Safety Board of Canada

Bureau de la sécurité des transports du Canada

AVIATION INVESTIGATION REPORT
A00Q0114

RUNWAY INCURSION

AIR CANADA
AIRBUS INDUSTRIE A319-114 C-FYJG
MONTRÉAL INTERNATIONAL AIRPORT (DORVAL), QUEBEC
26 AUGUST 2000

Canada

Aviation Investigation Report

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Summary

Air Canada flight 381 (ACA381), a Bombardier Regional Jet, was on approach to runway 24 right (24R) at Montréal International Airport (Dorval), Quebec. Meanwhile Air Canada flight 567 (ACA567), an Airbus Industrie A319, was preparing to depart Dorval en route to Denver, Colorado. ACA567 contacted the clearance delivery controller at 0833 eastern daylight time and was issued an instrument flight rules clearance, with departure instructions that specified runway 24 left (24L). During the clearance readback, a pilot of ACA567 read back runway 24R instead of 24L, but the controller did not challenge the change in runway. When ACA567 contacted the ground controller (the same person as the clearance delivery controller), the controller instructed ACA567 to taxi to runway 24R, with later instructions to contact the tower once in the holding bay of 24R.

After arrival in the bay of 24R, the crew of ACA567 reported to the airport controller that they were "with" him. About a half minute later, ACA567 was cleared by the airport controller to taxi to position on runway 24L. ACA567 acknowledged the clearance, without repeating the runway assignment, and taxied to position on runway 24R. ACA381, one and a half miles on final approach to 24R, was cleared to land by the airport controller, who then noticed ACA567 taking position on runway 24R. The airport controller cleared ACA567 for an immediate take-off, and the crew complied. However, the crew of ACA381 decided the aircraft could not be landed safely and went around. The go-around was initiated when the aircraft was about 500 feet above ground level.

Ce rapport est également disponible en français.

Other Factual Information

During the morning, the tower supervisor was performing the duties of the airport controller. He had 20 years' experience as an air traffic controller and had been qualified in Dorval tower for 16 years. Two other controllers were at work; however, at the time of the occurrence one was on a break. The clearance delivery position and the ground control position were staffed by the one controller on duty, and the airport control and radar coordinator duties were being performed by the tower supervisor. To simplify the operation and reduce ground control workload, the airport controller had arranged with the other tower controllers and with the Montréal Area Control Centre (ACC) Montréal departure controller, as a standard procedure for that staffing situation, that all departures would use runway 24L and all arrivals, runway 24R. General aviation aircraft would use runway 24L for both arrivals and departures. Traffic complexity and volume at the time of the occurrence were described as moderate.

Although the instrument flight rules (IFR) departure instructions issued with the IFR clearance for ACA567 stated runway 24L, the readback by ACA567 stated 24R. The change was noted by the clearance delivery controller and accepted. The controller then altered the flight progress strip for ACA567, containing the printed clearance information and the written runway information, to indicate the change from runway 24L to 24R: the letter "L" in the runway designation 24L was overwritten by the letter "R". Pilots of heavy aircraft often request runway 24R for departure because that runway offers approximately 1300 feet more take-off distance. In this occurrence the crew did not verbally request runway 24R, but read back the clearance incorrectly as 24R.

Nav Canada's *Air Traffic Control Manual of Operations*, Part 9, Flight Progress Strip Marking, specifies, in article 902, that information that is no longer valid should have a line drawn through it and that markings should not be erased or written over. The *Montréal Tower Operations Directives*, Chapter 3, specifies that information to be corrected on a flight progress strip should be crossed out with a horizontal line and the new information added in the free space. The flight progress strip for ACA567 was not changed in accordance with the directives.

In July 2000, the TSB forwarded Aviation Safety Advisory A000035 (concerning TSB Report No. A99H0003) to Nav Canada highlighting the risks associated with using ad hoc control practices, especially when there is no inter-controller communication. In response, Nav Canada issued an Air Traffic Services Safety Bulletin (No. 2000-3, effective 26 October 2000) pertaining to deviation from established procedures. This publication pointed out the risks associated with such action and the importance of taking steps to mitigate any increased risk should deviation from established procedures be deemed necessary. The bulletin was issued two months after this occurrence.

The agreed procedure for departures and arrivals at Dorval had been previously coordinated. However, Dorval operations directives do not require that other controllers or involved persons be briefed on changes to agreed procedures or that flight

progress strips be conspicuously marked to bring special attention to the change. The ground controller did not advise the airport controller that an aircraft was instructed to depart using runway 24R, nor did the airport controller notice the change to the runway assignment on the flight progress strip for ACA567.

ACA567 contacted the airport controller on handover from the ground controller at approximately 0914 eastern daylight time by advising that ACA567 was "with" him. At the time, the airport controller was dealing with ACA381 on final for runway 24R, several other airborne aircraft in the vicinity, and three other aircraft on the ground. Canadian 386 had just landed on runway 24R. Delta 1933 was given take-off clearance on runway 24L, and Canadian 869, a Boeing 737, was waiting in the holding bay of runway 24L (see Appendix A).

Canadian 869, in the holding bay of runway 24L, was painted with the new Canadian Airlines paint scheme. At a distance—the airport control tower is approximately two miles from the runway 24L holding bay—this paint scheme is similar to that of Air Canada. The airport controller saw an aircraft in the holding bay of runway 24L where he expected to see ACA567. After several intervening transmissions, the controller issued line-up clearance on runway 24L to ACA567 in response to the call that ACA567 was "with" him. ACA567 acknowledged the clearance but did not repeat the runway designation as required by the Air Canada flight operations manual.

After issuing directions to Canadian 386 to exit runway 24R and contact ground control, the airport controller turned his attention to ACA381 on final approach for runway 24R and issued the landing clearance. He then noticed ACA567 on runway 24R, rather than on runway 24L as expected.

Analysis

The clearance delivery controller did not challenge the change in runway designation made by the ACA567 crew during the readback. Although he amended the flight progress strip, it was not amended in the manner required by applicable directives. A change made in accordance with the directives would have been easier to discern. It is possible that the airport controller did not notice the change in runway designation because of the way the alteration to the strip was made.

The established procedure that morning was to route departures to runway 24L, but the procedure was changed without coordination or communication with the other controller. Dorval tower operations directives do not require that changes to established procedures be coordinated or that individuals making changes take steps to mitigate any increased risk when deviations from established procedures are made.

The airport controller cleared ACA381 to land on runway 24R while ACA567 was taxiing to position on the same runway, indicating that the controller did not perform an effective scan of

the runway before issuing the landing clearance. The presence of an aircraft in the holding bay of runway 24L with a paint scheme similar to that of the Air Canada aircraft may have confirmed the airport controller's expectation that ACA567 was taxiing to the appropriate runway.

Though ACA567 was not cleared to position on runway 24R, the clearance delivery controller accepted the readback of 24R and, as the ground controller, subsequently cleared ACA567 to that runway. This would have led the crew to expect that a clearance to position, or to take off, would also be for runway 24R. The omission of the runway designation in the acknowledgement of the clearance to taxi to position eliminated a defence against the communications anomalies that occurred.

Findings as to Causes and Contributing Factors

1. The clearance delivery controller did not challenge the change in runway designation made during the readback of the instrument flight rules clearance. As the ground controller, he provided taxi instructions to runway 24R and the instruction to contact the tower when in the bay for 24R. Consequently, the crew of ACA567 believed that runway 24R would be their departure runway.

2. ACA567 was cleared to taxi to position on runway 24L. However, based on the expectation that runway 24R would be the departure runway, the aircraft was taxied to position on runway 24R, placing ACA567 on the runway intended for use by ACA381.

3. When cleared to position, the crew of ACA567 did not read back the designation of the runway to which they had been cleared. This eliminated the possibility that they or the airport controller would detect the discrepancy by that means.

4. The airport controller cleared an aircraft to land on runway 24R without ensuring that the runway would be clear of other traffic.

Findings as to Risk

1. In the Dorval tower there is no requirement to discuss changes to agreed procedures with other controllers or involved persons.

2. The flight progress strip was not amended in the manner required by Nav Canada's *Air Traffic Control Manual of Operations*. This might have eliminated a means of communicating the change in runway assignment to the airport controller.

Safety Action

Nav Canada reports that recurrent refresher training provided to control tower staff in early spring 2001 covered teamwork, communications, and the need to adhere to standard operating procedures.

Additionally, Dorval control tower strip-writing procedures were amended in the fall of 2000. These procedures now instruct controllers to highlight the runway number assigned for take-off on the flight progress strip whenever the runway differs from those normally assigned according to established procedures.

This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board authorized the release of this report on 30 May 2001.

Appendix A—Montréal International Airport (Dorval)