

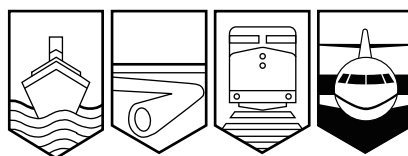
Transportation Safety Board
of Canada



Bureau de la sécurité des transports
du Canada

AVIATION INVESTIGATION REPORT

A03P0259



NAVIGATIONAL ERROR – PREMATURE DESCENT

AIR CANADA

AIRBUS 319-114 C-FYKW

VERNON, BRITISH-COLUMBIA

23 AUGUST 2003

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

An Air Canada Airbus A319 (serial number 0695, registration C–FYKW), operating as ACA183, was on a scheduled flight from Toronto, Ontario, to Kelowna, British Columbia. Before departure from Toronto, the crew was informed by the Notice to Airmen (NOTAM) that, because of extensive forest fires in the area, only the non-directional [radio] beacon (NDB) B approach would be available at Kelowna. When the flight was in the vicinity of the Enderby VOR (very high-frequency omni-directional beacon), the crew was advised by the Vancouver Area Control Centre (ACC) that the NDB B approach was no longer available. The only approach available to the Kelowna Airport was a visual approach.

The crew commenced a descent into Kelowna and advised the Vancouver ACC controller that they had the Kelowna Airport in sight. The controller cleared ACA183 to the Kelowna Airport for a visual approach – Runway 15 was active – and handed off the aircraft to the Kelowna tower. ACA183 continued inbound to Kelowna on a track that passed over the town of Vernon. The crew configured the aircraft for landing, with the landing gear down and flaps at position 2. When the captain saw the Vernon airport Runway 23, he turned to a heading of 242° Magnetic, selected the flaps at position 3, and commenced a visual approach to Runway 23 at the Vernon Airport. After 40 seconds, when the aircraft was approximately 1.3 nautical miles from the threshold and 730 feet above ground level (agl), the crew executed a go-around. Shortly after the go-around was initiated, ACA183 received a TCAS (traffic alert and collision avoidance system) traffic advisory generated by a Cessna 152 aircraft in the Vernon circuit. ACA183 levelled off at 6000 feet above sea level (asl), and the Kelowna tower controller then issued directions to the Kelowna Airport. The crew subsequently carried out a visual approach to Runway 15 at Kelowna and landed without further incident.

Other Factual Information

Knowledge of a serious forest fire south of the Kelowna Airport prompted Air Canada Flight Dispatch, at the request of the crew, to make three telephone calls to Kelowna tower – two before ACA183 departed from Toronto, and one while ACA183 was en route – enquiring if the airport was open. At no time did the dispatcher(s) ask about the availability of instrument approaches, nor did Kelowna tower personnel volunteer any additional information. Air Canada Flight Dispatch was not aware of the reason the instrument landing system/distance measuring equipment (ILS/DME) 1 approach was not authorized, nor was it aware of the possibility that the NDB B approach might be cancelled for the same reason.

When the Vancouver ACC controller advised the crew that no instrument approach was available, he gave no reason, and the crew did not ask for a reason. The controller did not comment on the serviceability of the approach nav aids. There are two instrument approaches at Kelowna, namely the NDB B and the ILS/DME 1, both for Runway 15. Instrument approaches were not authorized, because, in each case, the associated missed approach procedure infringed on the designated, fire-suppression zone, the boundary of which was located just to the south of the airport. The approach nav aids were fully serviceable.

ACA183 commenced descent from flight level (FL) 350 on a northwesterly heading when it was 57.4 nautical miles from the Kelowna Airport¹ on airway J569, which runs northwest to Enderby VOR then southwest to Kelowna. During the descent out of FL200, the crew was asked to expedite through 13 000 feet asl. On three occasions during the descent, the crew advised the Vancouver ACC controller that they had the field in sight. On 15 September 2003, a Transport Canada King Air aircraft, with Transportation Safety Board investigators on board, followed the flight path and profile flown by ACA183 into Kelowna. It was determined that at no point on that profile was it possible to see the Kelowna Airport. During the go-around from Vernon Airport, when the King Air aircraft was over Lake Okanagan at 6000 feet asl, the Kelowna Airport became visible.

The *Air Canada Route Manual* contains a visual transition procedure for Kelowna Runway 33 but not for Runway 15, the active runway at the time of the incident. The crew improvised a visual approach using the engine-out procedure chart for Runway 33. The *Air Canada Route Manual* does not depict the Vernon Airport and its aerodrome traffic frequency (ATF) on any Kelowna chart.

Air Canada has a visual approach policy in its *Flight Operations Manual* that gives general guidelines for the conduct of visual approaches. It also has aircraft-specific visual approach procedures in the *Aircraft Operating Manual* for each aircraft type as *Standard Operating Procedures* (SOP). For the A319/A320/A321 aircraft, the SOPs state that visual approaches are planned to be referenced on a nominal 3° glide slope, but there is no guidance as to how that slope is to be achieved.

¹ Flight information was derived from the flight data recorder.

At 42.7 nautical miles from the Kelowna Airport, ACA183 was in a descent through 12 000 feet asl, and the crew had commenced a turn to track toward the LW (Kelowna) NDB. At 22.3 nautical miles from the Kelowna Airport, at an altitude of 4000 feet asl, the crew selected Flap 1, followed quickly by Flap 2, landing gear down, and the speed brakes selected in. During descent, the first officer was distracted from approach-monitoring duties while trying to talk to company personnel in Kelowna regarding a gate assignment. At 18.6 nautical miles from the Kelowna Airport, at an altitude of approximately 2600 feet asl, the captain turned toward Runway 23 at the Vernon Airport. Flap 3 was selected and the rate of descent increased from approximately 800 feet per minute (fpm) to approximately 1800 fpm. After 40 seconds, when ACA 183 was 1.3 nautical miles from the Vernon Airport, the first officer, aware of the distance to Kelowna Airport, suggested they perform a go-around, which was then carried out by the captain. The go-around was initiated from an altitude of approximately 2000 feet asl, 730 feet agl. At all times during the approach, the aircraft's navigation system was set up to provide bearing and distance information from the Kelowna Airport, but neither pilot actively or effectively monitored the aircraft flight path and altitude in relation to the distance from the planned landing runway.

Once the Vancouver ACC controller cleared the aircraft for a visual approach, the captain focussed his attention outside the aircraft and conducted navigation by visual reference to the ground. He did not reference the information available from his cockpit displays on the distance to the Kelowna Airport and did not compare the aircraft headings with the intended runway heading.

Both the Vancouver ACC controller and the Kelowna tower controller believed the crew could see the Kelowna Airport, and both observed on radar the aircraft descend to a low altitude in the vicinity of Vernon. When ACA183 was at 3000 feet asl and descending, the Kelowna tower controller queried the ACA183 crew about its altitude. The aircraft continued to descend.

The Vernon Airport is an uncontrolled aerodrome with a designated ATF for use within a five-nautical-mile radius and up to 4100 feet asl. Aircraft entering this area are expected to broadcast their intentions on 122.8 MHz, the local unicom frequency, to ensure that all aircraft operating at the airport are aware of each other. ACA183 made no such broadcast.

After landing at Kelowna, the captain contacted an Air Canada supervisory pilot by telephone and recounted the incident. The captain indicated that, while the aircraft had descended to a lower altitude than usual, it had not reached a significantly low altitude. The cockpit voice recorder (CVR) data was not secured at that time. The CVR operates on a continuous 30-minute loop and when ACA183 continued on its scheduled flights to Victoria and Vancouver, the pertinent section of the CVR tape was overwritten.

The flight data recorder (FDR) was removed from the aircraft and its information was recovered for analysis by the TSB Engineering Branch.

The captain had been employed by Air Canada for seven years. He held a valid Canadian airline transport pilot licence (ATPL) endorsed for the Airbus A319/320/321 and a group 1 instrument rating. He had accumulated 10 500 hours of total flying time, including 3520 hours on the Airbus

A319/320/321 and 1351 hours as captain. He held a Kelowna aerodrome qualification, an Air Canada authorization to operate into Kelowna Airport, and had flown into and out of Kelowna the previous week.

The first officer had been employed by Air Canada for three years. He held a valid Canadian ATPL endorsed for the Airbus A319/320/321 and a group 1 instrument rating. He had accumulated 5890 hours of total flying time, including 658 hours as first officer on the Airbus A319/320/321. The first officer had not previously operated into Kelowna Airport.

At the time of the incident, the following information from the Kelowna automatic terminal information service was in effect:

Kelowna Airport information Golf – Weather at 1800 Zulu, wind 190 at 7; visibility 15; few clouds at 6000, few clouds at 25 000; temperature 20; dew point -0; altimeter 30.02; IFR approach visual, active Runway 15. NOTAM: All instrument procedures Runway 15 not authorized. IFR departures Runway 15 not authorized due [to] forest fire. Forest fire area from Kelowna Airport to 4 miles southwest and from Kelowna Airport 19 miles south at 8000 msl and below; all aircraft remain clear. Prior permission required. Request permission from Kelowna tower on frequency 119.6. Inform ATC that you have information Golf.

Kelowna tower personnel reported that, while the visibility to the south of the airport was somewhat restricted due to smoke from forest fires, the visibility in the north quadrant was unlimited.

Analysis

The captain made the decision to conduct a visual approach to the Kelowna Airport, because he was familiar with the Kelowna area and could see the area where he knew the Kelowna Airport was located. Although the crew members could not yet see the Kelowna Airport, the weather was good and they could see the ground, so a visual approach should have presented no difficulty.

It was concluded from information gathered from the FDR data and some flight simulations that when the Vernon airport came into view, the captain misidentified it as the Kelowna Airport and turned the aircraft to the right to line up with the centreline of Runway 23 at Vernon. Neither crew member noted that the aircraft heading and the runway heading were 80 degrees off the intended landing runway, Runway 15, nor did they make effective use of the aircraft's navigation system during the approach. The first officer, although unfamiliar with the area, was aware from his cockpit displays that considerable distance remained to the Kelowna Airport. He was, however, initially distracted by radio calls with company personnel and was slow to intervene in the approach to the Vernon Airport.

The crew members were not made aware of the reason that instrument approaches were not available at the Kelowna Airport, nor did they ask. Had they known it was because the missed approach paths infringed on the designated fire suppression zone and that all approach aids

were fully functional, they could have completed the NDB B approach, or even the ILS/DME 1 approach with its glideslope guidance, provided they remained in visual meteorological conditions and did not fly south of the Kelowna Airport.

The following TSB Engineering Branch report was completed:

LP 80/2003 – FDR Analysis

Findings as to Causes and Contributing Factors

1. While executing a visual approach to the Kelowna Airport, the captain misidentified the Vernon Airport as the Kelowna Airport and executed a visual approach to the Vernon Airport, descending to 730 feet agl before executing a go-around.
2. The first officer was aware from his cockpit displays that considerable distance remained to the Kelowna Airport. He was, however, initially distracted by radio calls and was slow to intervene in the approach to the Vernon Airport.

Findings as to Risk

1. The approach to the wrong airport created a risk of collision with other air traffic and a risk of landing on an inappropriate runway for the aircraft type.
2. The *Air Canada Route Manual* contains a visual transition procedure for Runway 33 in Kelowna, but none for Runway 15. The crew had to improvise a visual approach using the engine-out procedure chart for Runway 33.

Other Findings

1. After landing at Kelowna, the captain telephoned a supervisory pilot and advised him that the incident was not significant. The CVR data was, therefore, not secured for the investigation.
2. The crew members were not aware of the specific reason why instrument approaches were not available at Kelowna. Had they known the reason, they could have utilized the Kelowna ILS or NDB for guidance.
3. The Vernon Airport and its ATF are not depicted on any Air Canada Route Manual Kelowna charts. Should Air Canada crew members find themselves about to infringe on the ATF zone, they would be unable to find the frequency on which they are required to broadcast their position and intentions.

Safety Action Taken

Air Canada

Air Canada has extended its “sterile cockpit” concept to prohibit radio communications between crews and the company when below 10 000 feet, and to emphasise the monitoring of correct approach parameters.

On 02 June 2004, the TSB sent an Aviation Safety Advisory (615–A040025–1) to Air Canada. The advisory emphasized the importance of using all available navigation systems to assist in maintaining situational awareness during visual approaches.

Air Canada’s Flight Safety Department has highlighted this occurrence in the last three issues of its corporate magazine *Flight Safety*. Additionally, Air Canada’s internal Flight Safety Investigative Report has been passed to the Flight Operations Training and Standards personnel for follow up and minor rule changes. The Airbus A319/320/321 annual recurrent training program has been altered to highlight this incident and to encourage discussions dealing with similar situations.

This report concludes the Transportation Safety Board’s investigation into this occurrence. Consequently, the Board authorized the release of this report on 10 November 2004.

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Appendix A – Track of Air Canada 186

