



## **AVIATION OCCURRENCE REPORT**

### **ATS RELATED EVENT**

**BETWEEN  
AIR ONTARIO LTD.  
DE HAVILLAND DHC-8 C-GONX  
AND  
CANADIAN FORCES  
CANAD AIR LTD. CT-114 TUTOR  
SAULT STE. MARIE AIRPORT, ONTARIO  
25 NOVEMBER 1993**

**REPORT NUMBER A93O0382**

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**Canada**

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## **MANDATE OF THE TSB**

The Canadian Transportation Accident Investigation and Safety Board Act provides the legal framework governing the TSB's activities. Basically, the TSB has a mandate to advance safety in the marine, pipeline, rail, and aviation modes of transportation by:

- conducting independent investigations and, if necessary, public inquiries into transportation occurrences in order to make findings as to their causes and contributing factors;
- reporting publicly on its investigations and public inquiries and on the related findings;
- identifying safety deficiencies as evidenced by transportation occurrences;
- making recommendations designed to eliminate or reduce any such safety deficiencies; and
- conducting special studies and special investigations on transportation safety matters.

It is not the function of the Board to assign fault or determine civil or criminal liability. However, the Board must not refrain from fully reporting on the causes and contributing factors merely because fault or liability might be inferred from the Board's findings.

## **INDEPENDENCE**

To enable the public to have confidence in the transportation accident investigation process, it is essential that the investigating agency be, and be seen to be, independent and free from any conflicts of interest when it investigates accidents, identifies safety deficiencies, and makes safety recommendations. Independence is a key feature of the TSB. The Board reports to Parliament through the President of the Queen's Privy Council for Canada and is separate from other government agencies and departments. Its independence enables it to be fully objective in arriving at its conclusions and recommendations.



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

### ATS Related Event

Between  
Air Ontario Ltd.  
De Havilland DHC-8 C-GONX  
and  
Canadian Forces  
Canadair Ltd. CT-114 Tutor  
Sault Ste. Marie Airport, Ontario  
25 November 1993

Report Number A93O0382

### *Synopsis*

Bandit 22 (BDIT22), a Canadian Forces Tutor, was cleared for a contact approach to the Sault Ste. Marie Airport. Air Ontario flight 294 (ONT294) had been cleared to depart from runway 11. The tower controller attempted to contact BDIT22 but was unsuccessful until the aircraft was on short final for the active runway. BDIT22 saw ONT294 on the runway and conducted a missed approach; the tower controller cancelled the take-off clearance for ONT294 and instructed the crew to hold their position on the runway.

The Board determined that the tower controller positioned ONT294 on the active runway and cleared it for take-off without establishing direct pilot-controller communications with BDIT22.

Ce rapport est également disponible en français.

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OCCURRENCE NUMBER: A9300382  
 TYPE OF OCCURRENCE: ATS Related Event (Incident)  
 DATE OF OCCURRENCE: 25 November 1993  
 LOCAL TIME: 1810 EST  
 LOCATION: Sault Ste. Marie Airport,  
 Ontario  
 TYPE OF AIRCRAFT: De Havilland DHC-8  
 REGISTRATION: C-GONX  
 TYPE OF OPERATOR: Air Carrier  
 TYPE OF OPERATION: Scheduled Domestic  
 DAMAGE CATEGORY: None  
 PILOT LICENCE: Airline Transport

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**PILOT-IN-COMMAND**


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PILOT HOURS:	Last 90 Days	Total
All Types	100	6,000
On Type	100	2,000

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**CO-PILOT**


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PILOT HOURS:	Last 90 Days	Total
All Types	170	4,300
On Type	170	N/ A

INJURIES:	Crew	Passengers
Fatal	-	-
Serious	-	-
Minor	-	-
None	3	36

TYPE OF AIRCRAFT: Canadair Ltd. CT-114 Tutor  
 REGISTRATION: Not Applicable  
 TYPE OF OPERATOR: Military  
 TYPE OF OPERATION: Other  
 DAMAGE CATEGORY: None  
 PILOT LICENCE: Military

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**PILOT-IN-COMMAND**


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PILOT HOURS:	Last 90 Days	Total
All Types	N/ A	N/ A
On Type	N/ A	N/ A

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**CO-PILOT**


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PILOT HOURS:	Last 90 Days	Total
All Types	N/ A	N/ A
On Type	N/ A	N/ A

INJURIES:	Crew	Passengers
Fatal	-	-
Serious	-	-
Minor	-	-

None 2 -

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**AIR TRAFFIC CONTROLLERS**


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CONTROLLER POSITION: Tower  
 TYPE OF LICENCE: Airport Controller  
 EXPERIENCE:  
 - as a controller 20 years  
 - as an IFR controller N/ A  
 - in present unit 15 years

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CONTROLLER POSITION: Sault Low Sector  
 TYPE OF LICENCE: IFR Controller  
 EXPERIENCE:  
 - as a controller 23 years  
 - as an IFR controller 21 years  
 - in present unit 13 years

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## 1.0 Factual Information

### 1.1 History of the Flight

BDIT22, a Canadair CT-114 Tutor, was on an instrument flight rules (IFR) flight plan inbound to Sault Ste. Marie, Ontario, from Winnipeg, Manitoba. BDIT22 was cleared to the Sault Ste. Marie Airport for an instrument landing system (ILS) approach to runway 11. At approximately three miles from the final approach fix, the approach clearance was cancelled because the aircraft was too high on approach, and a clearance was issued for a descending 360-degree turn to the left to re-intercept the localizer at a lower altitude. During the turn, the sector controller issued a contact approach clearance to the crew and co-ordinated a transfer of control for the aircraft with the tower controller.

Air Ontario flight 294 (ONT294), on an IFR flight plan from Sault Ste. Marie Airport to Toronto/ Lester B. Pearson International Airport, Ontario, was cleared by the tower controller to position and hold on the active runway. When control of BDIT22 was passed from the sector controller to the tower controller and an IFR release for ONT294 was obtained, the tower controller cleared ONT294 for take-off. The tower controller attempted several times to contact BDIT22 by radio; however, he was unable to do so. He cancelled the take-off clearance for ONT294 and instructed the

crew to hold their position on the runway. Radio contact was eventually established with BDIT22 and the aircraft conducted a missed approach.

### 1.2 *Weather*

The 1800 EST surface actual weather report at Sault Ste. Marie was reported as 1,000 feet scattered, measured ceiling 1,500 feet broken, 10,000 feet overcast, visibility 15 miles, temperature minus 4 degrees Celsius, dew point minus 6 degrees Celsius, wind 100 degrees at 12 knots, and altimeter setting 30.41 inches of mercury. These are visual meteorological conditions.

### 1.3 *Air Traffic Control (ATC) Manual of Operations (MANOPS)*

MANOPS Section 362.5 states that a tower controller may assume responsibility for control of an arriving IFR or CVFR (controlled visual flight rules) aircraft that has been cleared for an approach provided:

- A. VFR conditions exist at the airport;
- B. you [the tower controller] have sighted the aircraft and are satisfied that it will remain in sight and not have to return to IFR conditions;
- C. the aircraft intends to land and not continue on an IFR clearance; and
- D. the aircraft is at a position within the control zone agreed upon by:

- 1. you and the IFR controller when you request control; or
- 2. both units as specified in an agreement.

Section 351.1 of the MANOPS directs tower controllers to:

Issue clearances and instructions, as necessary, to maintain a safe, orderly, and expeditious flow of airport traffic.

Section 352.2 of the MANOPS directs tower controllers to:

Separate an arriving aircraft from a preceding aircraft using the same runway by ensuring that the arriving aircraft does not cross the landing threshold until one of the following conditions exists:

- A. The preceding aircraft has landed and taxied off the runway.
- B. The preceding aircraft has landed or is over the landing runway; and
  - 1. is at a distance from the threshold sufficient to allow the arriving aircraft to complete its landing roll without jeopardizing safety; and
  - 2. the arriving aircraft is advised of the preceding aircraft's position and

intentions.

- C. The preceding aircraft is airborne; and
  - 1. is at a sufficient distance from the threshold that the arriving aircraft will not overtake it during the landing roll or conflict with it in the event of a missed approach; or
  - 2. has turned to avoid any conflict with the arriving aircraft in the event of a missed approach.

#### *1.4 Inter-Unit Agreement*

A memorandum of understanding (MOU) between the Toronto Area Control Centre (ACC) and the Sault Ste. Marie Control Tower defined the procedure for the automatic transfer of control of inbound IFR flights under certain guidelines, as follows:

- a) the control transfer point would be the final approach fix serving the active IFR approach [in this case, the Gros Cap NDB];
- b) the ceiling would be at least 3,000 feet and the visibility five miles or greater;
- c) Sault tower notifies Toronto centre immediately when the weather falls below the established criteria for automatic control transfer;
- d) automatic transfer does not apply to an IFR aircraft on a pre-determined IFR missed approach.

#### *1.5 Transfer of Control*

The tower controller requested that control of the aircraft inbound to the airport be transferred as each successive aircraft passed the Gros Cap beacon (slightly more than four miles final for runway 11, the active runway) at Sault Ste. Marie. This transfer of control was agreed to by the sector controller.

The tower controller's plan was to establish radio contact with BDIT22 near the Gros Cap beacon when control was transferred from the sector controller. He would notify the aircraft of the departing ONT294 flight and request that the aircraft reduce its approach speed or fly a circuit overhead the airport while the DHC-8 departed. In this manner, the departing flight would have a minimal delay. However, after establishing that the tower controller had BDIT22 in sight, the sector controller cleared BDIT22 to the contact approach at Sault Ste. Marie but delayed the instruction to BDIT22 to switch to the tower frequency at Sault Ste. Marie for more than one minute. The reason for the delay could not be established.





## 2.0 *Analysis*

### 2.1 *Inter-Unit Agreement and MANOPS Requirements*

ATC MANOPS, Section 362.5, states that in order for control of an IFR aircraft to be transferred between a sector controller and a tower controller, VFR meteorological conditions must prevail. The MOU between the Sault Ste. Marie control tower and the Toronto ACC stipulated that automatic transfer of control from the sector controller to the tower controller would be permitted if the officially reported weather was at least 3,000 feet and five miles.

Since the reported 1800 EST weather conditions were lower than those required by the MOU but were above VFR limits, the tower controller assumed responsibility of the inbound aircraft in accordance with section 362.5 of the MANOPS. After the sector controller cleared BDIT22 to the contact approach at Sault Ste. Marie, the sector controller delayed the instruction to switch to the tower frequency at Sault Ste. Marie for more than one minute.

### 2.2 *Tower Controller's Plan of Action*

The tower controller's plan to coordinate the departure of ONT294 and the arrival of BDIT22 was based on the assumptions that control transfer of BDIT22 and direct pilot-controller communication with BDIT22 would be established at least four miles from the airport. This would allow the tower controller to request BDIT22 to overshoot the active runway and fly a circuit while ONT294 departed. The plan did not take into account all variables, and ONT294 should not have been cleared to the runway to hold in position in anticipation of all events unfolding as planned. The plan did not proceed as expected because the transfer of control took place in proximity to the airport and

the tower controller cleared ONT294 for take-off without first establishing direct pilot-controller communications with BDIT22 to ensure separation from ONT294.



## 3.0 *Conclusions*

### 3.1 *Findings*

1. The tower controller initiated a transfer of control for BDIT22, and the sector controller agreed to the transfer of control.
2. The tower controller positioned ONT294 on the active runway without first establishing direct pilot-controller communications with BDIT22.
3. The tower controller cleared ONT294 for take-off before establishing radio contact with BDIT22.
4. After clearing BDIT22 to the contact approach at Sault Ste. Marie, the sector controller delayed the instruction to switch to the tower frequency at Sault Ste. Marie for more than one minute.

### 3.2 *Causes*

The tower controller positioned ONT294 on the active runway and cleared it for take-off without establishing direct pilot-controller communications with BDIT22.



## 4.0 *Safety Action*

The Board has no aviation safety recommendations to issue at this time.

*This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board, consisting of Chairperson, John W. Stants, and members Gerald E. Bennett, Zita Brunet, the Hon. Wilfred R. DuPont and Hugh MacNeil, authorized the release of this report on 28 February 1995.*

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\*Services available in both official languages