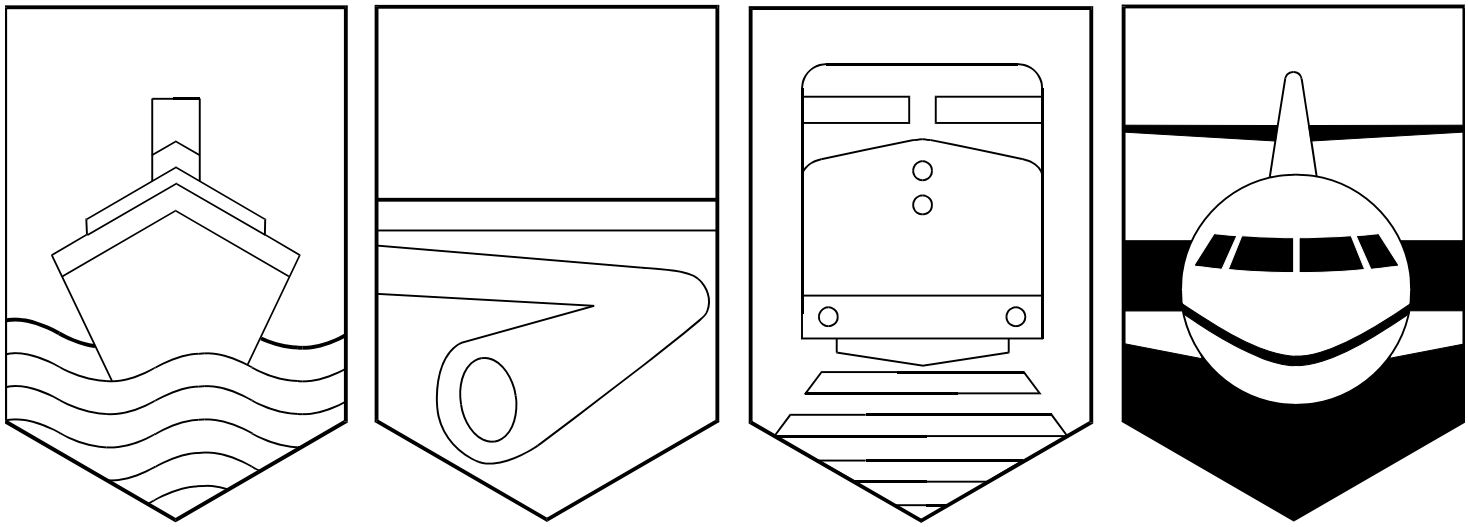
Transportation Safety Board of Canada

Bureau de la sécurité des transports du Canada



AVIATION OCCURRENCE REPORT

AIR PROXIMITY EVENT

BETWEEN
SAMARITAN AIR SERVICE LIMITED
LEARJET 35A C-FHLO
AND
JETALL HOLDINGS CORPORATION
CONVAIR 340/580 C-GJTU
TORONTO/LESTER B. PEARSON INTL AIRPORT, ONTARIO
25 nm SW
20 JULY 1994

REPORT NUMBER A94O0194

Canada

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.

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Aviation Occurrence Report

Air Proximity Event

Between
Samaritan Air Service Limited
Learjet 35A C-FHLO
and
Jetall Holdings Corporation
Convair 340/580 C-GJTU
Toronto/Lester B. Pearson Intl Airport, Ontario
25 nm SW
20 July 1994
Report Number A94O0194

Synopsis

A Learjet 35A was flying from the Toronto/Lester B. Pearson International Airport (LBPIA), Ontario, to the Hamilton Airport at 5,000 feet while a Convair 340/580 was flying in the opposite direction, from the Hamilton Airport to LBPIA, also at 5,000 feet. Spacing between the two aircraft was reduced to about two miles lateral and 600 feet vertical spacing where five miles lateral or 1,000 feet vertical spacing is required.

The Board determined that an air proximity event occurred because the Terminal controllers did not follow procedures as prescribed in the Terminal sector manual, and there was a lack of coordination between the Terminal and Hamilton sector controllers.

Ce rapport est également disponible en français.

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5.0 Appendices

1.0 Factual Information

1.1 History of the Flight

Samaritan Air flight Halo 404 (HLO404), a Learjet 35A, departed runway 24 Right at LBPIA, and was on an instrument flight rules (IFR)[1] flight to Hamilton Airport, Ontario, in level flight at 5,000 feet above sea level[2] (asl).

Jetall flight Firefly 712 (JTL712), a Convair 340/580, departed runway 12 Left at Hamilton Airport and was on an IFR flight to LBPIA, in level flight at 5,000 feet asl.

An air proximity event occurred 25 nautical miles (nm) southwest of LBPIA when the aircraft passed in opposite directions with about two miles lateral and 600 feet vertical spacing where five miles lateral or 1,000 feet vertical spacing is required. (See Appendix A.)

The incident occurred at 1035 eastern daylight saving time (EDT)[3] during the hours of daylight.

1 See Glossary for all abbreviations and acronyms.

2 Units are consistent with official manuals, documents, reports, and instructions used by or issued to the crew.

3 All times are EDT (Coordinated Universal Time (UTC) minus four hours) unless otherwise stated.

1.2 Injuries to Persons

1.2.1 Samaritan Air Learjet 35A C-FHLO

	Crew	Passengers	Others	Total
Fatal	-	-	-	-
Serious	-	-	-	-
Minor/None	2	1	-	3
Total	2	1	-	3

1.2.2 Jetall Convair 340/580 C-GJTU

	Crew	Passengers	Others	Total
Fatal	-	-	-	-
Serious	-	-	-	-
Minor/None	2	1	-	3
Total	2	1	-	3

1.3 Damage to Aircraft

There was no damage to the aircraft.

1.4 Other Damage

There was no other damage.

1.5 Personnel Information

1.5.1 Samaritan Air Learjet 35A C-FHLO

	Pilot-in-command	Co-pilot

Age	33	27
Pilot Licence	ATPL	ATPL
Medical Expiry Date	1 Jan 95	1 Jan 95
Total Flying Hours	4,500	2,500
Hours on Type	1,200	10
Hours Last 90 Days	90	10
Hours on Type Last 90 Days	90	10
Hours on Duty Prior to Occurrence	5	2
Hours off Duty Prior to Work Period	15	15

The pilot-in-command was at the controls and seated in the left seat at the time of the occurrence. The flight crew was certified and qualified for the flight in accordance with existing regulations.

1.5.2 Jetall Convair 340/580 C-GJTU

	Pilot-in-command	Co-pilot
Age	34	30
Pilot Licence	ATPL	ATPL
Medical Expiry Date	1 Oct 94	1 Sep 94
Total Flying Hours	7,200	5,200
Hours on Type	2,000	800
Hours Last 90 Days	150	150
Hours on Type Last 90 Days	150	150
Hours on Duty Prior to Occurrence	6	3
Hours off Duty Prior to Work Period	12	24

The pilot-in-command was at the controls and seated in the left seat at the time of the occurrence. The flight crew was certified and qualified for the flight in accordance with existing regulations.

1.5.3 Air Traffic Controller - South Departure

Controller Position	Terminal Control
Age	50
Licence	IFR
Medical Expiry Date	1 Jun 95
Experience	
- as a Controller	32 years
- as an IFR Controller	23 years
- in Present Unit	23 years
Hours on Duty Prior to Occurrence	3.5
Hours off Duty Prior to Work Period	48

1.5.4 Air Traffic Controller - Hamilton Sector

Controller Position	South Specialty
Age	46
Licence	IFR
Medical Expiry Date	1 May 95
Experience	
- as a Controller	25 years
- as an IFR Controller	9 years
- in Present Unit	9 years
Hours on Duty Prior to Occurrence	4
Hours off Duty Prior to Work Period	16

1.6 Aircraft Information

1.6.1 Samaritan Air Learjet 35A C-FHLO

Manufacturer	Learjet
Type and Model	35A
Year of Manufacture	1978
Serial Number	179
Certificate of Airworthiness (Flight Permit)	Valid
Total Airframe Time	Unknown
Engine Type (number of)	AiResearch TFE 731-2 (2)
Propeller/Rotor Type (number of)	Not Applicable
Maximum Allowable	18,000 pounds

Take-off Weight	
Recommended Fuel Type(s)	Jet A
Fuel Type Used	Jet A

The aircraft was certified, equipped, and maintained in accordance with existing regulations and approved procedures.

1.6.2 Jetall Convair 340/580 C-GJTU

Manufacturer	Convair
Type and Model	340/580
Year of Manufacture	1953
Serial Number	121
Certificate of Airworthiness (Flight Permit)	Valid
Total Airframe Time	Unknown
Engine Type (number of)	Allison 501-D13 (2)
Propeller/Rotor Type (number of)	Hamilton STD A6441FN-606A(2)
Maximum Allowable Take-off Weight	58,155 pounds
Recommended Fuel Type(s)	Jet A
Fuel Type Used	Jet A

The aircraft was certified, equipped, and maintained in accordance with existing regulations and approved procedures.

1.7 Meteorological Information

The LBPIA Automatic Terminal Information Service (ATIS) recorded the weather to be as follows: cloud measured ceiling 4,500 feet broken, 8,000 feet overcast, visibility six miles in light rain showers and haze, temperature 25 degrees Celsius, dew point 17 degrees Celsius, wind 180 degrees at four knots.

1.8 Communications - Sequence of Events

CODE: HM - Hamilton Sector
SD - South Departure

TIME (Z)	EVENT
14:34:10	Firefly 712 is radar identified out of Hamilton and cleared by HM to maintain 6,000 feet with a left turn direct to Toronto.
14:36:49	Firefly 712 is re-cleared to maintain 5,000 feet by HM.
14:37:15	Firefly 712 is vectored with a left turn to a heading of three five zero degrees by HM.
14:37:18	Halo 404 is level and maintaining 5,000 feet. Halo 404 is now vectored to the right to a heading of two four zero degrees by SD.
14:37:20	Firefly 712 is vectored with a further left turn to heading of two seven zero degrees by HM.
14:37:23	SD questions HM to see if Firefly is climbing.
14:37:30	HM informs SD that Firefly was stopped at 5,000 feet.
14:37:32	SD advises HM that Halo 404 was cleared only to 5,000 feet.
14:37:34	HM advises SD to turn Halo 404.
14:37:36	SD informs HM that Halo was turned to the right.

14:37:38	HM informs SD that Firefly was turning to the left.
14:37:40	SD informs HM that Halo is turning to the right.
14:37:40	Firefly 712 is instructed to descend to 4,000 feet by HM and is advised that the Learjet traffic (HLO404) is at his twelve o'clock at five miles distance. HM vectors Firefly 712 to turn to the right to heading zero nine zero degrees.
14:37:50	HM advises SD that he has vectored Firefly 712 to the right and that he is staying at 5,000 feet.
14:37:54	Halo 404 is cleared to maintain 6,000 feet and instructed to leave 5,000 feet.
14:37:57	HM informs SD that he is descending Firefly to 4,000 feet.
14:38:01	HM re-instructs Firefly to maintain 4,000 feet.
14:38:03	Firefly 712 acknowledges the descent clearance to 4,000 feet.
14:38:09	HM advises Firefly 712 that the Learjet traffic (HLO404) is off his right side and 500 feet above.

1.9 South Departure Sector Control

A total of nine operating positions are available in the Terminal Specialty: visual flight rules (VFR) advisory; Arrival 1; Arrival 2; Terminal Data; Coordinator; North Departure; South Departure; Satellite Radar; and Satellite Data. At the time of the occurrence, the North and South Departure positions were combined.

The Toronto Terminal Specialty is responsible for that airspace within a 26 nm radius of the Toronto very high frequency omni-directional range (VOR), from the ground up to and including flight level 230 (FL230). The departure airspace in the area of the occurrence is capped at 7,000 feet asl. Procedures at the Toronto Area Control Centre (ACC) stipulate that Terminal will clear all aircraft landing at Hamilton direct to the Bravo non-directional beacon (NDB) at an altitude determined by the active runway at LBPIA. When LBPIA arrivals are on runways 24L/R, 15 or 33 (as was the case on the day of the occurrence), Hamilton arrivals will be at 6,000 feet asl. It further states that, for Hamilton departures eastbound, the Hamilton controller shall clear this traffic to 5,000 feet asl and hand-off to South Departure.

1.10 Hamilton Sector Control

The South Specialty comprises two sectors: Grimsby sector and Hamilton sector. Training was being conducted at the Hamilton sector at the time of the occurrence. The South Specialty supervisor was monitoring the trainee controller, and, as the occurrence was unfolding, the supervisor unplugged the trainee's communication set and took over the sector's communication and traffic control.

Procedures in the Hamilton Sector Manual stipulate that Terminal will clear all aircraft landing at Hamilton direct to the Bravo NDB at an altitude determined by the active runway at LBPIA. When LBPIA arrivals are on runways 24L/R,
15 or 33, Hamilton arrivals will be at

6,000 feet asl. It further states that aircraft departing Hamilton shall be on course cleared to 5,000 feet asl and then handed off to South Departure. Specific routings are given for aircraft departing eastbound; however, the manual does not stipulate a procedure for aircraft departing Hamilton and landing at LBPIA.

1.11 Additional Information

There had been coordination between Hamilton sector and Terminal Data for the Convair to maintain 6,000 feet asl for landing at LBPIA.

There was no coordination or communication between Terminal and Hamilton sectors regarding the re-instruction for the Convair to maintain 5,000 feet.

The Automated Departure Display System (ADDS) showed the LBPIA departure (Learjet) with a pilot-requested altitude of 5,000 feet asl for the flight from LBPIA to Hamilton; the altitude filed by the crew was 5,000 feet. When operating in accordance with Air Navigation Order (ANO) Series V, No. 2, and IFR, as HLO404 was, the altitude that should have been filed was an "even thousands" altitude (4,000, 6,000, etc.).

2.0 Analysis

2.1 Terminal Control

The Learjet flight crew filed a flight plan altitude of 5,000 feet asl for their flight from LBPIA to Hamilton, and their requested altitude of 5,000 feet asl was displayed on the ADDS equipment. When coordination between Hamilton sector and the Terminal Data position occurred for the Convair, 6,000 feet asl was given with respect to the Learjet, which was contrary to procedure. The Terminal Radar controller cleared the Learjet to 5,000 feet because the ADDS indicated that the Learjet flight crew had only requested 5,000 feet and because he was aware that 6,000 feet had been coordinated for the Convair to proceed to LBPIA.

2.2 Hamilton Control

The Hamilton sector controller re-instructed the Convair to maintain 5,000 feet asl when he observed the Learjet depart LBPIA. He anticipated that the Learjet was going to enter his area of responsibility at 6,000 feet asl, which is the established procedure between Terminal and Hamilton sectors and is in accordance with the ANOs. He did not observe on the ADDS that the Learjet flight crew had only filed for 5,000 feet asl on their flight plan.

2.3 Coordination

A lack of coordination existed when Hamilton Sector did not communicate to Terminal that the Convair flight crew had been re-instructed to maintain 5,000 feet instead of 6,000 feet as had been previously coordinated.

3.0 Conclusions

3.1 Findings

1. The Learjet flight crew filed a wrong-way altitude of 5,000 feet asl on their flight plan.

2. Contrary to procedure, the Terminal Data controller coordinated 6,000 feet asl with the Hamilton sector controller for the Convair.

3. Contrary to procedure, the South Departure controller cleared the Learjet to 5,000 feet asl.

4. The Hamilton sector controller did not observe the Toronto departure (Learjet) on the ADDS.

5. The Hamilton sector controller did not coordinate or communicate to the Terminal controller that the Convair had been re-instructed to maintain 5,000 feet.

6. The Hamilton sector manual did not stipulate the procedure for aircraft departing Hamilton and landing at LBPIA.

3.2 Causes

An air proximity event occurred because the Terminal controllers did not follow procedures as prescribed in the Terminal sector manual, and there was a lack of coordination between the Terminal and Hamilton sector controllers.

4.0 Safety Action

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