Aviation Safety Investigation Report 199900266

Beech Aircraft Corp
Duchess
Ted Smith Aerostar Corp.
Aerostar
Pacific Aerospace Corporation
Airtrainer

27 January 1999

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Aviation Safety Investigation Report

199900266

Occurrence Number: 199900266 **Occurrence Type:** Incident
Location: 19km NNE Bindook, VOR
State: NSW **Inv Category:** 4
Date: Wednesday 27 January 1999
Time: 1853 hours **Time Zone** ESuT
Highest Injury Level: None

Aircraft Manufacturer: Pacific Aerospace Corporation
Aircraft Model: CT4B
Aircraft Registration: VH-YCB **Serial Number:** 098
Type of Operation: Non-commercial Other (including military)
Damage to Aircraft: Nil
Departure Point: Moruya NSW
Departure Time: 1753 ESuT
Destination: Tamworth NSW

Aircraft Manufacturer: Ted Smith Aerostar Corp.
Aircraft Model: 601
Aircraft Registration: VH-IXA **Serial Number:** 61-0476-126
Type of Operation: Charter Cargo
Damage to Aircraft: Nil
Departure Point: Young NSW
Departure Time: 1814 ESuT
Destination: Bankstown NSW

Aircraft Manufacturer: Beech Aircraft Corp
Aircraft Model: 76
Aircraft Registration: VH-IJW **Serial Number:** ME-16
Type of Operation: Charter Cargo Cargo
Damage to Aircraft: Nil
Departure Point: Unknown
Departure Time:
Destination: Camden NSW

Approved for Release: Tuesday, April 4, 2000

An Airtrainer departed Moruya for Tamworth, climbing to 6,000 ft, and estimating Bindook at 1842. The flight was being conducted in accordance with the instrument flight rules (IFR). An IFR Aerostar departed Young for Bankstown on climb to 7,000 ft. The Aerostar pilot planned to track to the north of Bindook and had been provided with traffic information on two aircraft, but not the Airtrainer. The Flight Service (FS) officer for that sector (FS17) estimated that the Aerostar would pass abeam Bindook at 1845.

The FS officer contacted the crew of the Airtrainer to advise of a Duchess tracking from Katoomba to Camden via Bindook at 6,000 ft. The crew of the Airtrainer requested traffic information for climb to 7,000 ft in order to remain clear of that aircraft. Although the proposed climb would place the Airtrainer at the same level as the Aerostar, the FS officer advised no additional IFR traffic. Because it was very busy at the time, the FS officer did not fully analyse the traffic situation. Consequently, mutual traffic information was not passed to the crews of the Airtrainer and the Aerostar, and the potential conflict was not annotated on their flight progress strips.

The crew of the Airtrainer subsequently reported having passed Bindook at 1843, leaving 6,000 ft for 7,000 ft. The pilot of the Aerostar reported passing abeam Bindook at 1845 maintaining 7,000 ft. Although the FS officer responded with additional traffic information, no advice was provided about the Airtrainer.

At about that time, the crew of the Airtrainer received an alert from their traffic collision and avoidance device (TCAD). The TCAD indicated an impending conflict with another aircraft at 7,000 ft, about 10 NM north of Bindook. At that time the aircraft was in instrument meteorological conditions. The pilot in command (PIC) of the Airtrainer initiated a rapid descent to 5,500 ft and turned away from the unknown traffic. Not aware that FS did not have access to radar information, the PIC of the Airtrainer asked the FS officer whether there were any radar paints in the area. The FS officer instructed the PIC of the Airtrainer to stand by while traffic information was passed to other aircraft, and while various other aircraft transmitted on the frequency to establish separation between each other.

Subsequent radar analysis determined that at the time of the TCAD alert, the aircraft were within 3 NM of each other and closing, with only 100 ft vertical displacement. At 1 NM range, vertical displacement increased to 400 ft and, when the aircraft passed each other, vertical separation had increased to approximately 900 ft.

When clear of the Aerostar the pilot of the Airtrainer re-commenced a climb to 7,000 ft and advised FS of the conflict. The FS officer confirmed that there was no additional IFR traffic for the climb other than the Duchess and another aircraft. Shortly after that information was passed to the crew, the Airtrainer climbed in cloud through the level of the Duchess.

Radar analysis indicated that when the Duchess and the Airtrainer passed each other in cloud there was a lateral displacement of approximately 1.5 NM and 900 ft vertical separation. Neither crew reported being aware of the close proximity of the other aircraft.

To assist FS officers with the maintenance of a mental model of aircraft traffic, a flight progress board utilising a geographic display layout was used. Local instructions required FS officers to place active flight progress strips above the geographic designator until all initial actions, including checking for traffic information, were completed. When all actions were completed, the strips were to be placed below the designator in the appropriate bay. Flight progress strips were to traverse the geographic display as the flight progressed across the displayed tracks or fixes of the FS officer's area of responsibility. Initially, the flight progress strip for the Airtrainer was in the Goulbourn/Shelleys bay to the south of Bindook, and was later moved to the Bindook bay. The strip for the Duchess was in the Wyatt/Katoomba/Watle bay, directly to the north of the Bindook bay. Because the Aerostar was tracking from Young direct to Bankstown, and would pass to the north of Bindook, the strip for that aircraft was placed in the Riley bay, to the north-west of the Bindook bay.

The FS officer was managing 12 aircraft on frequency within the area of responsibility, and had processed 16 aircraft in the 10-minute period prior to the first occurrence. There were numerous aircraft en route to Bankstown, operating IFR due to weather. Moreover, there were additional aircraft crossing that traffic from both the north and south, making traffic management complex for the FS officer. It was normal practice in such high workload situations for the team leader, or another FS officer, to assist in identifying potential conflicts by acting as a 'traffic spotter'. Although the workload was high due to a busy and complex traffic situation, the officer did not ask for assistance because other officers were taking a break, after a pilot had earlier been on frequency attempting to commit suicide in an aircraft. That experience had unsettled many of the staff. The team leader did not assign another officer, nor did he offer himself, to assist as a 'traffic spotter'.

The FS officer was experienced in air-ground operations and held appropriate endorsements for the position. However, because of ongoing staff shortages in air-ground operations, the officer was on a rotating roster of one week on air-ground duties and three weeks in the briefing office during each 28-day period. On the day of the occurrence, it was the FS officer's second day in an air-ground position after a 3-week rotation through the briefing office, and it was also the officer's sixth consecutive day of duty.

The FS officer had completed the FS17 proficiency assessment during the Class G airspace trial. At the time of that assessment, the area of responsibility encompassed a small portion of airspace near Young. Following termination of the trial, changes in procedures resulted in a tenfold increase in the area of FS17. Despite that change, the officer received only one shift under supervision before resuming duties in the pre-demonstration airspace. The FS officer had not previously worked the larger area of airspace since April 1997, except for one month whilst under training.

Local supervisory staff had been made aware of the FS officer's concerns regarding proficiency but it was reported that those concerns were not addressed. A management decision was made that all endorsements held during the Class G airspace trial would remain valid in the new but significantly changed environment. Management reported having 29 staff available to meet a requirement for 35 positions. The shortfall was reported to be having an effect on the provision of training and recreational leave, necessitating overtime.

The investigation determined that, although the FS officer may have intended to review and provide a more accurate traffic assessment for the Airtrainer and Aerostar, the officer was overwhelmed by heavy workload at the time, resulting in routine actions not being completed. It is considered that the errors made by the FS officer were symptomatic of wider organisational factors. These factors included inadequate training; inadequate geographic display; increased area of responsibility; staff shortages; management decisions relating to airspace procedures; and a lack of adequate supervision.

When the crew of the Airtrainer first proposed a climb from 6,000 ft to 7,000 ft, the FS officer did not fully analyse the traffic situation and made an incorrect traffic assessment. The Aerostar flight progress strip being in an inappropriate section of the geographic display exacerbated the potential for error. The placement of the flight progress strip into the Riley bay for the Aerostar, and the Goulbourn/Shelleys bay for the Airtrainer, together with their different cruising altitudes, did not highlight a potential traffic confliction, nor provide an effective traffic situation display to the FS officer.

SIGNIFICANT FACTORS

1. The geographic display system did not provide an effective traffic situation display to the flight service officer.

2. The flight service officer did not pass mutual traffic information to the crews of the Airtrainer and Aerostar.

3. The flight service officer had not received adequate training for the FIS 17 area of responsibility following termination of the Class G airspace trial.

4. The traffic situation at the time of the occurrence was of increased complexity and density due to instrument meteorological conditions.

5. The flight service officer was not provided with supervision or sufficient assistance during a busy and complex period of operation.

6. The rostering practices applicable to the flight service officer were not conducive to maintaining an adequate level of proficiency.

7. The flight service officer was exposed to a period of heightened anxiety immediately prior to the occurrence.

8. The situational awareness of the crew of the Airtrainer to their proximity to the Duchess may have been adversely affected by their preceding confliction with the Aerostar.

SAFETY ACTION

Local safety action

The Airservices Australia Occurrence Investigation report recommended that:

"1. CATSOAM be amended to reflect the requirement for flight service officers to maintain the same recency requirements as air traffic controllers (7 hours in the preceding 14 days);

2. A review of the functionality of the FS17 flight progress board be conducted by Melbourne flight service to evaluate its functionality during periods of adverse weather conditions and high traffic loading;

3. At least two Melbourne flight service centre staff be sufficiently trained to provide an acceptable level of peer support in line with the ATC controller friend provisions; and

4. Air traffic services establish an operational performance check requirement for any staff who have not held a valid rating on airspace post a procedures change".