Aviation Safety Investigation Report 199700506

Piper Aircraft Corp
Chieftain
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Chieftain

19 February 1997

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Aviation Safety Investigation Report

199700506

The Bureau did not conduct an on scene investigation of this occurrence. The information presented below was obtained from information supplied to the Bureau.

Occurrence Number: 199700506 **Occurrence Type:** Incident
Location: 24km N Sydney, Aerodrome
State: NSW **Inv Category:** 4
Date: Wednesday 19 February 1997
Time: 1650 hours **Time Zone** ESuT
Highest Injury Level: None

Aircraft Manufacturer: Piper Aircraft Corp
Aircraft Model: PA-31-350
Aircraft Registration: VH-HVA **Serial Number:**
Type of Operation: Air Transport Low Capacity Passenger Scheduled
Damage to Aircraft: Nil
Departure Point: Maitland NSW
Departure Time: 1623 ESuT
Destination: Sydney NSW

Aircraft Manufacturer: Piper Aircraft Corp
Aircraft Model: PA-31-350
Aircraft Registration: VH-TXK **Serial Number:** 31-7405189
Type of Operation: Air Transport Domestic Low Capacity Passenger Scheduled
Damage to Aircraft:
Departure Point: Unknown
Departure Time:
Destination: Sydney NSW

Approved for Release: Friday, November 14, 1997

FACTUAL INFORMATION

A Piper Chieftain registered as VH-HVA (HVA) had been flight planned to operate a flight from Maitland to Sydney at 6,000 ft. Another Chieftain registered VH-TXK from the same company was planned to conduct a flight from Gunnedah to Sydney at 7,000 ft. There was approximately 15 degrees between the inbound tracks of the two flights and their respective flight times and estimated time of departures indicated that they would arrive at Sydney at about the same time.

The two aircraft departed and were approaching Sydney when the pilot of HVA reported his position to the Departures North controller (DEPN). The pilot advised that the aircraft was 44 NM north of Sydney and he was requesting an airways clearance. The secondary surveillance radar (SSR) transponder replies for HVA were not being received and that aircraft was not displayed on the DEPN radar display. DEPN misheard the transmission and assumed that the clearance request was from the pilot of TXK, which was displayed on the controller's radar display. The radar display indicated that this aircraft was 60 NM to the north-west of Sydney. This was a difference of 16 NM from the distance reported. DEPN issued a clearance for TXK to enter controlled airspace at 7,000 ft. The pilot of HVA believed this clearance was in response to his request and acknowledged the clearance, but incorrectly read back the level as 6,000 ft. DEPN did not challenge the read back by the pilot of the incorrect level.

Approximately two minutes later, the pilot of TXK requested from DEPN a clearance to enter controlled airspace. DEPN re-issued the clearance at 7,000 ft. The pilot of that aircraft correctly read back the clearance.

The flow controller was concerned that HVA was not being displayed on the radar and requested the DEPN controller to attempt to contact that aircraft. DEPN transmitted to HVA and after receiving a reply from the pilot, requested the latter to change the aircraft's transponder code. This new code was observed on the display approximately 13 NM north of Sydney and 2.2 NM from the symbol for another aircraft at 6,000 ft. The required horizontal separation standard was 3 NM. There was a breakdown of separation.

The Sydney terminal radar consists of two radar systems; a primary radar with a range of 50 NM and an SSR which has a range of 250 NM. Consequently, aircraft with an inactive or unserviceable SSR transponder more than 50 NM from Sydney airport were not displayed. Pilots were required to check that an aircraft transponder was receiving and replying to an SSR. The pilot of HVA checked the transponder in flight and believed that the system was operating as he approached Sydney controlled airspace.

The callsigns of the two aircraft were distinctly different but some transmissions were truncated or clipped which made reception of the broadcasts difficult.

One of the methods available to a controller to identify an aircraft on radar was to correlate the observed and reported positions. When using this method a controller was required to ensure that the observed position was within the navigation tolerance of the reported position. The DEPN controller had other means available to him to identify an aircraft on radar. The investigation was unable to identify the radar identification method used by the controller.

ANALYSIS

The DEPN controller missed an opportunity to confirm the identification of the aircraft requesting a clearance when he did not correlate the observed radar position, of what he believed was TXK, with the actual position provided by the pilot of HVA. The difference between the positions was approximately 16 NM. This disparity in the positions could have alerted the controller to the possibility of a mis-identification. However, the controller did not use this information to assist in the identification of the aircraft.

The pilot of HVA had an expectation of receiving a clearance from DEPN following his request. This expectation led him to believe that the clearance issued was for his aircraft, despite the clearance being prefixed with a different callsign and not at his planned level.

The pilot's subsequent read back of the incorrect level was not recognised by DEPN and the mis-identification of the aircraft remained undetected.

The reason for DEPN not observing and querying the primary radar symbol from HVA was not ascertained. Similarly, the reason for the eventual operation of HVA's transponder was not ascertained.

SIGNIFICANT FACTORS

1. DEPN did not observe the primary radar symbol from HVA while the aircraft was within 50 NM of Sydney.

2. The SSR label for the HVA was not displayed on the controller's radar.

3. The controller did not correlate the pilot position report of HVA with the observed radar position on the display.

4. The pilot of HVA acknowledged and read back the clearance incorrectly.

5. DEPN did not challenge the incorrect level read back from the pilot of HVA.