Aviation Safety Investigation Report 198801577

Fokker F27-50
Beech A36

15 June 1988

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NOTE: All air safety occurrences reported to the ATSB are categorised and recorded. For a detailed explanation on Category definitions please refer to the ATSB website at www.atsb.gov.au.

Occurrence Number: 198801577 **Occurrence Type:** Incident
Location: Melbourne Control Zone, Vic
Date: 15 June 1988 **Time:** 1004
Highest Injury Level: Nil
Injuries:

	Fatal	Serious	Minor	None
Crew	0	0	0	0
Ground	0	0	0	-
Passenger	0	0	0	0
Total	**0**	**0**	**0**	**0**

Aircraft Details:	Fokker F27-50	Beech A36
Registration:	VH-FNF	VH-WMK
Serial Number:	20111	E-1450
Operation Type:	Regular Public Transport	Private
Damage Level:	Nil	Nil
Departure Point:	Devonport, Tas	Moorabbin, Vic
Departure Time:	N/K	956
Destination:	Melbourne Airport, Vic	Shepparton, Vic

Approved for Release: March 10th 1989

Circumstances:

This was the first time the pilot of VH-WMK had flown to the Melbourne area and for departure he attended the Moorabbin Briefing Office where he submitted a Visual Flight Rules plan for a flight to Shepparton and Lightning Ridge. The flight plan indicated that in the Melbourne area the pilot would be operating outside controlled airspace, (OCTA). The area forecast included predictions of broken stratus from 800 feet to 2000 feet above mean sea level with showers/drizzle and visibility reduced to six kilometres in showers and 3 kilometres in drizzle. Fog patches were predicted until 1000 hours. Under visual flight procedures navigation by reference to the ground is considered impractical above broken cloud cover. After departure the pilot found he was soon over full fog/low cloud cover, and he had difficulty ascertaining his position. However, he was able to remain in clear conditions on top, cruising initially at 2000 feet. The aircraft was equipped with radio navigation aids. Although there were ground stations in the Melbourne area to which these aids could be tuned, the pilot had the equipment selected to the Mangalore aids which did not give him navigational assistance. Melbourne Airport was closed to aircraft operations due to poor visibility associated with fog. Because of this there were many regular public transport (RPT) aircraft holding at various locations and heights. Essendon Airport was open and some smaller RPT aircraft were diverting into Essendon for landing, in lieu of Melbourne Airport. As a consequence of the situation the Melbourne Approach Controller was very busy. Approaches for Essendon were via the Plenty Locator and the Essendon Instrument Landing System (ILS) for runway 26. One of the aircraft diverting to Essendon was the F27, VH-FNF. As this aircraft was passing the Plenty area at an altitude of 3000 feet, tracking west for the Essendon ILS approach, the crew noted a light aircraft pass underneath them, tracking approximately north. They were not concerned at the time as it was approximately 1000 feet vertically clear of them. Other aircraft were holding at altitudes above VH-FNF, in a racetrack pattern, with respect to the Epping Locator. This beacon is some ten kilometres north-west of the Plenty locator and the flight paths were such that the radar returns at times passed in the vicinity of the Plenty

Locator. At times, this presented to the controller a cluttered radar screen in that area. A characteristic of the radar equipment was that false returns were displayed on the radar screen as primary radar paints. For varying intervals, two of these appeared on the Approach Controller's screen close to the time of the incident. To ascertain whether a return is in fact an aircraft, requires several time consuming checks. In heavy workload conditions such as existed at the time it is often impractical for a controller to carry out these checks. Track splitting of radar returns from aircraft had also occurred. Another problem for the controller was that the tracks of two aircraft holding at Epping was sometimes lost from the display. Another controller standing behind the Approach Controller saw an unidentified return emerge from the screen clutter, in close proximity to the returns from VH-FNF and the other holding aircraft. It was initially thought this may have been associated with track splitting of the images of one of the holding aircraft. Because the Approach Controller was busy, the unidentified return was followed on another radar screen. At 1009 hours when asked for a position report, the pilot of VH-WMK indicated he was unable to ascertain his position due to fog. VH-WMK was radar identified at 1009 hours, by that time the aircraft was exiting the Melbourne Control Zone (Melbourne CTR) near Yan Yean Reservoir. The pilot was provided with radar assistance until he was able to resume his own navigation in the Kilmore area. The Melbourne Radar equipment detects aircraft by two different methods. It may detect reflections of radar signals which bounce off the body of an aircraft. These are known as a primary returns. The other type of return is generated by transponder equipment on board an aircraft. A radar transponder is sensitive to radar energy and is designed to emit a pulse whenever it is so triggered. This electrical reply to the radar beam is known as a secondary return. VH-WMK was equipped with a transponder, however, on this occasion it had not been selected "ON". This aircraft was planned to operate outside controlled airspace (OCTA) and although not mandatory, there was a notam requesting pilots operating OCTA within coverage of the Melbourne Radar to have their transponder selected on Mode "C", Code 2000. Radar signals received at the Melbourne radar are recorded and a replay of these was made. It was determined from the radar replay that VH-WMK entered controlled airspace without a clearance and crossed 0.7 nautical miles in front of VH-FNF. VH-FNF was maintaining an altitude of 3000 feet at the time, and it is thought that VH-WMK was maintaining about 2000 feet. The radar recording did not show a return from VH-WMK until 47 seconds prior to that aircraft entering controlled airspace and 77 seconds prior to its crossing the path of VH-FNF. At the time of the unapproved entry of VH-WMK into controlled airspace the Melbourne Approach Controller was busy and had his attention focussed on another area. In the short time span between the entry of VH-WMK into controlled airspace and its passing under VH-FNF, it was not detected by the controller.

Significant Factors:

1. Fog/low cloud in the Melbourne terminal area.

2. The pilot of VH-WMK was inexperienced at operating in the Melbourne area.

3. The pilot of VH-WMK was unable to visually fix his position due to fog/low cloud.

4. The pilot of VH-WMK continued with the flight instead of returning to Moorabbin, when he first became aware of the extent of the fog and cloud cover.

5. The pilot of VH-WMK did not select the appropriate navigation aids to assist him in remaining clear of controlled airspace.

6. The pilot of VH-WMK was late in advising of his navigational difficulties.

7. Unauthorised entry into controlled airspace by VH-WMK.

8. The Melbourne Terminal Area Radar failed to detect the presence of VH-WMK until late in its approach to the Melbourne CTR boundary.