Aviation Safety Investigation Report 199602837

Partenavia Costruzioni Aeronautiche SPA
P.68C
Boeing Co
B767

06 September 1996

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Aviation Safety Investigation Report

199602837

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: 199602837 **Occurrence Type:** Incident
Location: 3km WNW Darwin, Aerodrome
State: NT **Inv Category:** 4
Date: Friday 06 September 1996
Time: 1720 hours **Time Zone** CST
Highest Injury Level: None

Aircraft Manufacturer: Boeing Co
Aircraft Model: 767-338ER
Aircraft Registration: VH-OGI **Serial Number:** 25246
Type of Operation: Air Transport High Capacity Passenger
Damage to Aircraft: Nil
Departure Point: Darwin, NT
Departure Time:
Destination: Singapore, Singapore

Aircraft Manufacturer: Partenavia Costruzioni Aeronautiche SPA
Aircraft Model: P.68C
Aircraft Registration: VH-UUP **Serial Number:** 220
Type of Operation: Instructional Check
Damage to Aircraft: Nil
Departure Point: Darwin NT
Departure Time:
Destination: Darwin NT

Approved for Release: Friday, May 16, 1997

FACTUAL INFORMATION

A pilot undergoing a flight check was conducting instrument flight rules (IFR) airwork in a Partenavia (P.68C) at Darwin. The pilot requested approval from the approach radar (APP) controller to conduct a runway 11 locator approach. This would entail the P.68C flying a tear drop pattern from overhead the aerodrome, then tracking out to the northwest with a right turn to return to the aerodrome. The intial holding altitude for the procedure is 3,000 ft, with the aircraft descending while flying the tear drop pattern. The APP controller was expecting a Boeing 767 (B767) to depart shortly from runway 29 en route to Singapore and on climb to flight level (FL) 310. The outbound track for the B767 was 294 degrees.

To maintain separation between the two aircraft, the APP controller decided to assign separation responsiblity to the pilot of the P.68C. The APP controller asked the pilot to report sighting the B767 which was taxiing for departure, and whether he could maintain separation with the B767. The pilot of the P.68C stated that he could see, and would maintain his own separation with, the B767. The pilot of the P.68C explained to the APP controller that he had a check captain on board and that the latter would maintain visual contact with the departing B767. The APP controller instructed the pilot of the P.68C to make the locator approach and to maintain 3,000 ft.

The Manual of Air Traffic Services (MATS) states that visual separation can be used "when a pilot, at or below 10,000 ft reports sighting another aircraft and is instructed to maintain visual separation from it." The Aeronautical Information Publication (AIP) which details the rules and procedures applicable to pilots contains a corresponding reference to the visual separation standard. Neither the MATS nor the AIP detailed a minimum lateral or vertical separation distance to be maintained by the pilot in the application of the visual separation procedure. The AIP further states that if a pilot is given responsibility for separation from another aircraft, he is also responsible for the provision of wake turbulence separation. The crew of the B767 were not aware of the P.68C. The APP controller was not required to advise them that the pilot of the P.68C had been assigned visual separation responsiblity.

It was early in the evening and consequently the crew of the B767 were looking into the setting sun as the aircraft departed. After becoming airborne the crew noted a target on the aircraft's Traffic Alert and Collision Avoidance System (TCAS). The TCAS indicated that there was an aircraft 1,800 ft higher than the B767 and on their intended track. The crew of the B767 attempted to sight the other aircraft but were unable to see because of the glare from the sun. The TCAS indicated the vertical separation was 800 ft and rapidly closing when the crew were able to sight the aircraft just off to the right of the track of the B767. The B767 crew decided that to comply with their clearance, which would have required a right turn towards the other aircraft, would cause the two aircaft to conflict. Consequently, the B767 crew maintained runway heading to avoid the P.68C. The check captain in the P.68C had observed the departing B767 and believed that there was sufficient horizontal separation between the two aircraft. Both the pilot and the check captain of the P.68C were aware of the intended track of the B767.

The B767 crew contacted the APP controller and requested traffic information on the P.68C. The APP controller advised them that the pilot of the P.68C had the B767 in sight, was maintaining visual separation and was at 3,000 ft. Subsequently, after passing the P.68C and leaving 3,000 ft, the crew of the B767 turned their aircraft to intercept the outbound track.

As there are no radar recording facilities at Darwin the actual minimum horizontal and vertical separation between the two aircraft could not be ascertained. The APP controller's use of the visual separation standard was in accordance with the MATS which authorised the transfer of separation responsibility to the pilot under certain circumstances. As the visual separation procedure has no minimum separation distances for use by the pilot in the application of the procedure, and the check pilot in the P.68C had the B767 in sight, there was no breakdown in separation.

ANALYSIS

The provision of traffic information to the crew of the B767 was not required. However, issuance of traffic information on the flight of the P.68C prior to departure would have reduced the element of surprise when the crew of the B767 became aware of the other aircraft. The B767 crew's concern with the location of the P.68C was understandable given that they were not aware that the crew of the other aircraft had them in sight and were maintaining visual separation.

The installation of TCAS to aircraft enables flight crews to monitor the proximity of other aircraft with an operable transponder. Consequently, crews with access to TCAS are usually more aware of traffic in proximity to their aircraft. There may be benefit in providing traffic information to crews in similar situations to avoid unnecessary deviations from the cleared route and/or altitude.

The check captain continually observed the B767 while the pilot of the P.68C flew the runway 11 locator approach. The amount of horizontal or vertical separation required when using the visual separation procedure is at the discretion of the responsible pilot. Neither the MATS nor the AIP details a minimum horizontal or vertical separation distance or provides any guidance for what is expected or is considered safe. Currently, the minimum separation distance is subjective and conditional upon the training and experience of the pilot using the procedure. Publication of a minimum horizontal or vertical distance to be maintained between aircraft during the application of visual separation would enable flight crews and air traffic controllers to assess whether the procedure was being applied correctly.

SIGNIFICANT FACTORS

1. The pilot of the P.68C accepted responsibility for visual separation from the B767.

2. The visual separation procedure did not provide a minimum horizontal or vertical separation distance to assist pilots in the safe application of the procedure.

3. The crew of the B767 were not provided with traffic information on the P.68C.

SAFETY ACTION

The Bureau of Air Safety Investigation is evaluating the provision of traffic information by air traffic control, and guidance for the application of the visual separation procedure. Any forthcoming recommendations will be published in the Quarterly Safety Deficiency Report.