Aviation Safety Investigation Report 199603313

Airbus
A320
Saab Aircraft AB
SF-340A

11 October 1996

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Aviation Safety Investigation Report

199603313

Occurrence Number: 199603313 **Occurrence Type:** Incident
Location: 22km E Melbourne, Aerodrome
State: VIC **Inv Category:** 4
Date: Friday 11 October 1996
Time: 1500 hours **Time Zone** EST
Highest Injury Level: None

Aircraft Manufacturer: Airbus
Aircraft Model: A320-211
Aircraft Registration: VH-HYG **Serial Number:** 029
Type of Operation: Air Transport Domestic Passenger
Damage to Aircraft: Nil
Departure Point: Brisbane, QLD
Departure Time: 1305 EST
Destination: Melbourne, VIC

Aircraft Manufacturer: Saab Aircraft AB
Aircraft Model: SF-340A
Aircraft Registration: VH-KDB **Serial Number:** 008
Type of Operation: Air Transport Domestic Low Capacity Passenger
Damage to Aircraft: Nil
Departure Point: Wynyard, TAS
Departure Time: 1348 EST
Destination: Melbourne , VIC

Approved for Release: Friday, September 5, 1997

FACTUAL INFORMATION

History of the flight

An Airbus A320 was inbound to Melbourne aerodrome and the crew had been cleared to track via an ARBEY four standard arrival route (STAR) on descent to 4,000 ft. The A320 was the third aircraft to track via the ARBEY four STAR in the arrival sequence for runway 27, under the control of the approach controller.

The ARBEY four STAR was being used to facilitate the arrival of aircraft primarily from the west and north of Melbourne to runway 27. Flight crews cleared via the STAR were required to initially track in a southerly direction to the Fentons Hill very high frequency omni-directional radio range (VOR) navigation aid and then turn left to track 106 degrees to a position on right base for runway 27 at 9 NM from the aerodrome. From this position, aircraft were to turn right to intercept final for runway 27.

For sequencing with other aircraft, the approach controller had cancelled the tracking via the ARBEY four STAR for two previous aircraft and he intended to do the same for the A320. He planned to issue a heading to the crew of the A320 which would continue the aircraft in an easterly direction. The approach controller had limited the descent of the A320 to 4,000 ft to ensure that the aircraft remained in controlled airspace when it was on the easterly heading. His intention was to maintain the A320 north of the extended centreline of runway 27, for separation and sequencing, and to eventually radar vector the aircraft onto final. The approach controller did not instruct the crew of the A320 to cancel the STAR or to adopt an easterly radar heading, and the crew continued tracking via the STAR.

The approach controller was under the impression that the crew was maintaining an easterly radar heading. The A320 was heading 106 degrees in accordance with the STAR procedure, and was slowly converging on the extended centreline of runway 27 from the north.

As the A320 approached the point at which the aircraft would be turned onto final, the crew reported to the approach controller that they were maintaining 4,000 ft. The approach controller acknowledged the report.

A Saab SF-340, inbound from the southeast, was being radar vectored by the approach controller via a left base for runway 27. The approach controller was using radar to separate a number of aircraft inbound from the east and an aircraft north of Moorabbin (located southeast of Melbourne aerodrome) inbound to that aerodrome. The approach controller vectored the SF-340 through the runway 27 centreline for sequencing with the aircraft ahead on final and instructed the crew to descend to 2,000 ft. The approach controller meant to instruct the crew of the SF-340 to turn left to intercept final for runway 27, but he actually said turn right. As he corrected the direction of the turn to the crew of the SF-340, he observed that the A320 was turning right onto final and was going to conflict with the SF-340.

The approach controller instructed the crew of the A320 to cancel the STAR and to turn left heading 120 degrees. He advised the crew of the A320 of the location of the SF-340 and asked them to report sighting that aircraft. The crew of the A320 reported that they had the SF-340 in sight. The horizontal separation between the two aircraft was 1.5 NM and the SF-340 had descended through the level of the A320. The required separation was 3 NM horizontally or 1,000 ft vertically. There was a breakdown of separation.

The approach controller

The approach controller was a team leader and was undergoing a performance check on the position. The controller operated the position, unobserved by the check controller, for approximatetly 45 minutes while the latter completed some administration. The approach controller was not using flight progress strips for arriving aircraft, although he did have access to the flow controller's strips which indicated the arrival sequence. The use of flight progress strips was not mandatory at the position. During the period at the position the number of aircraft under his control had gradually increased. Analysis of the flow controller's flight progress strips and the radar recording indicated a busy and moderately complex traffic sequence during this period. The check controller returned to the position just prior to the occurrence.

The performance of team leaders was checked in the same manner as other controllers with the exception that the performance and check report was not scored. The check controller was only required to assess the team leader's performance as a pass or fail, and to comment on any shortcomings. The comments provide a history of team leaders' strengths and weaknesses. Other controllers received a score in addition to the comments on their performance and check reports. This provided a history of their performance in addition to the comments on any other aspects of their control.

The approach controller maintained his air traffic control skills through regularly exercising his seven ratings. As a team leader this had proven to be difficult to manage at times due to his other administrative and management commitments. Training of other controllers for ratings and consolidation of rated controllers in the various positions reduced the opportunities for him to practice his skills as much as he would have wanted. The approach controller felt that in recent years he had slowed down in his performance of control tasks because of the reduced time at the various radar positions.

ANALYSIS

The approach controller felt that his proficiency at the position had reduced to a level less than he preferred as a result of the limited opportunities to practise his skills. This was mainly due to the team leader duties requiring the majority of his time and an inability to obtain access to radar positions because of the training/consolidation commitments for other controllers. It is possible that a higher level of proficiency would have enabled him to better manage the workload. The degree to which this aspect contributed to the incident could not be ascertained.

Distraction as a result of the problems with traffic in the Moorabbin area and the minor difference between the STAR track and the intended radar heading, probably caused the approach controller to not detect that the A320 was still tracking via the STAR. Once he had accepted this situation, there was nothing to alert or remind him that this was not the case, until the A320 turned right onto final approach for runway 27. The lack of any means to readily display the intended track of an aircraft would appear to indicate that controllers must use their working memory to retain such details. However, the limited capacity of working memory and its limited tolerance to interruptions means that information is often forgotten. Facilities, equipment or procedures that may assist controllers to remember essential details would be beneficial.

The workload due to the level and complexity of the traffic sequence allowed little time for the approach controller to review his actions. The cancellation of the STAR for the two previous aircraft may have led him to believe that he had also cancelled the STAR for the A320.

The "Maintaining 4,000 ft" report by the crew of the A320 probably alerted the approach controller to the location of the A320. However, he was unaware of the potential conflict until the A320 turned onto final.

SIGNIFICANT FACTORS

1. The approach controller's proficiency was not at an optimum level.

2. The approach controller was unable to adequately review his actions because of the workload associated with the busy traffic sequence.

3. The approach controller did not cancel the STAR with the crew of the A320.

4. There was no segregation between aircraft on the STAR and aircraft on final for RWY 27.

5. The approach controller did not notice that the A320 was continuing to track via the STAR until the aircraft turned base.

SAFETY ACTION

Local safety action

Airservices Australia has amended the STAR to provide horizontal separation between the downwind portion of the procedure and the extended centreline of runway 27.

Bureau of Air Safety Investigation safety action

The Bureau of Air Safety Investigation is reviewing issues associated with team leaders' maintenance of proficiency and their performance assessment. Any recommendations arising from this investigation will be published in the Quarterly Safety Deficiency Report.