Australian Government
Australian Transport Safety Bureau

ATSB TRANSPORT SAFETY INVESTIGATION REPORT

Aviation Occurrence Report – 200600524

Final

Ground Collision – Melbourne Airport
02 February 2006
N127UA
Boeing Company 747-422
VH-OGH
Boeing Company 767-338ER

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Abstract

On 2 February 2006 at approximately 1308 Eastern Daylight-saving Time, a US registered Boeing Company 747-422 (747) aircraft was taxiing for departure at Melbourne Airport, Vic. At the same time, a Boeing Company 767-338ER (767) aircraft was stationary on taxiway Echo and waiting in line to depart from runway 16. The tail section of the 767 was protruding into taxiway Alpha while it was stationery on taxiway Echo awaiting a clearance to enter the runway.

The pilots of the 747 received a clearance to taxi, which included a taxi route from the international apron to the holding point on taxiway Bravo, for a departure from runway 16, via taxiways Uniform then Alpha. The pilot in command of the 747 deviated from the taxi clearance issued by the surface movement controller and turned the 747 right into taxiway Echo, to pass behind the 767. The left wing tip of the 747 collided with the right horizontal stabiliser of the 767 as the 747 crew attempted to manoeuvre behind the 767.

The taxiway dimensions and markings at Melbourne Airport complied with international standards and were suitable for use by the aircraft types involved in the occurrence.

The 747 crew was aware of the 767, and chose to pass behind it rather than wait on taxiway Alpha until the 767 was no longer obstructing the taxiway. The decision by the pilot in command of the 747 to deviate off the centreline of taxiway Alpha and taxi behind the 767 did not comply with the taxi clearance issued by the SMC. It was based on his assessment that it was safe to do so. The pilot in command of the 747 misjudged the distance between the wingtip of the 747 and the right horizontal stabiliser of the 767, which resulted in the collision.

THE AUSTRALIAN TRANSPORT SAFETY BUREAU

The Australian Transport Safety Bureau (ATSB) is an operationally independent multi-modal Bureau within the Australian Government Department of Transport and Regional Services. ATSB investigations are independent of regulatory, operator or other external bodies.

The ATSB is responsible for investigating accidents and other transport safety matters involving civil aviation, marine and rail operations in Australia that fall within Commonwealth jurisdiction, as well as participating in overseas investigations involving Australian registered aircraft and ships. A primary concern is the safety of commercial transport, with particular regard to fare-paying passenger operations. Accordingly, the ATSB also conducts investigations and studies of the transport system to identify underlying factors and trends that have the potential to adversely affect safety.

The ATSB performs its functions in accordance with the provisions of the *Transport Safety Investigation Act 2003* and, where applicable, relevant international agreements. The object of a safety investigation is to determine the circumstances to prevent other similar events. The results of these determinations form the basis for safety action, including recommendations where necessary. As with equivalent overseas organisations, the ATSB has no power to implement its recommendations.

It is not the object of an investigation to determine blame or liability. However, it should be recognised that an investigation report must include factual material of sufficient weight to support the analysis and findings. That material will at times contain information reflecting on the performance of individuals and organisations, and how their actions may have contributed to the outcomes of the matter under investigation. At all times the ATSB endeavours to balance the use of material that could imply adverse comment with the need to properly explain what happened, and why, in a fair and unbiased manner.

Central to the ATSB's investigation of transport safety matters is the early identification of safety issues in the transport environment. While the Bureau issues recommendations to regulatory authorities, industry, or other agencies in order to address safety issues, its preference is for organisations to make safety enhancements during the course of an investigation. The Bureau is pleased to report positive safety action in its final reports rather than make formal recommendations. Recommendations may be issued in conjunction with ATSB reports or independently. A safety issue may lead to a number of similar recommendations, each issued to a different agency.

The ATSB does not have the resources to carry out a full cost-benefit analysis of each safety recommendation. The cost of a recommendation must be balanced against its benefits to safety, and transport safety involves the whole community. Such analysis is a matter for the body to which the recommendation is addressed (for example, the relevant regulatory authority in aviation, marine or rail in consultation with the industry).

FACTUAL INFORMATION

On 2 February 2006 at approximately 1308 Eastern Daylight-saving Time[1], a US registered Boeing Company 747-422 (747) aircraft was taxiing for departure at Melbourne Airport, Vic. At the same time, a Boeing Company 767-338ER (767) aircraft was stationary on taxiway Echo and waiting in line to depart from runway 16. The left wing tip of the 747 collided with the right horizontal stabiliser of the 767 as the 747 passed behind the 767. Both aircraft were on scheduled passenger services from Melbourne to Sydney, NSW.

The 747 sustained substantial damage to the leading edge of the left wing tip. The left wing tip fairing sustained chord-wise damage except for a small section near the trailing edge of the wing. The left navigation and strobe light coverings were destroyed. The left winglet remained undamaged (Figure 1).

Figure 1: Damaged left wingtip of the 747

The 767 sustained significant damage to the right horizontal stabiliser. A substantial section outboard of the elevator was destroyed (Figure 2).

1 The 24 hour clock is used in this report to describe the local time of day, Eastern Daylight-saving Time, as particular events occurred. Eastern Daylight-saving Time was Coordinated Universal Time (UTC) +11 hours.

Figure 2: The damaged right horizontal stabiliser of the 767

There were two pilots in the cockpit of the 747 at the time of the occurrence. The pilot in command was steering the aircraft and reported that he could see the left wingtip of the aircraft. The 767 was stationary on taxiway Echo between taxiway Alpha and runway 16. It was the third aircraft in a queue for departure from runway 16 from taxiway Echo. The right horizontal stabiliser of the 767 was protruding approximately 8.75 m into taxiway Alpha and 1.7 m west of the centreline of taxiway Alpha (Appendix A).

The flight crew of the 767 disembarked the aircraft's 165 passengers and crew via airstairs while the aircraft remained on the taxiway. The passengers and crew of the 747 remained on board their aircraft while the aircraft was towed back to a parking position on the international apron. There were no reported injuries to any of the passengers or crew on board either aircraft.

The flight crew of the 747 stated they could clearly see the tail section of the 767 as they moved along taxiway Alpha. As the 747 approached the intersection of taxiways Alpha and Echo, the pilot in command turned the aircraft right, and into the intersection to manoeuvre around the 767. Both pilots of the 747 reported that the taxiing speed of the 747 was no more than 10 kts, which was slower than usual for straight taxiway sections.

There was a large concrete area at the intersection of taxiways Alpha, Echo and Foxtrot (Appendix A). The intersection provided considerable room for the 747 to manoeuvre to the south and east of the 767. However, the north-eastern side of the concrete area narrowed, reducing the space available for the 747 to manoeuvre past the 767. The pilot in command reported that, as he taxied behind the 767, he thought the left wingtip of the 747 was clear of the tail section of the 767, and decided it was safe to proceed past the 767.

The taxiway dimensions and markings at Melbourne Airport complied with international standards and were suitable for use by the aircraft types involved in the occurrence.

The Australian Manual of Air Traffic Services (MATS) promulgated the objectives of air traffic control, including the prevention of collisions between aircraft, and to expedite and maintain an orderly flow of traffic. Control of aircraft taxiing on the manoeuvring area of Melbourne Airport is managed by a surface movement controller (SMC) operating from the control tower. According to the MATS, separation of aircraft on the manoeuvring area is a joint responsibility between a pilot in command and a controller. Also, a number of pilot reference documents, including the Australian Aeronautical Information Publication[2] and the US Federal Aviation Administration Aeronautical Information Manual[3], advised that pilots are responsible for collision avoidance while taxiing.

At Melbourne Airport, pilots were required to obtain a clearance to taxi from the SMC. The pilots of the 747 received a clearance to taxi, which included a taxi route from the international apron to the holding point on taxiway Bravo, for a departure from runway 16, via taxiways Uniform then Alpha. It did not include approval to deviate off taxiway Alpha and into taxiway Echo to pass behind the 767. The pilots of the 747 acknowledged receipt of that clearance and read it back to the SMC. They were not advised about the location or intentions of the 767, or provided with instructions by the SMC to avoid the 767.

The SMC at Melbourne Airport was seated towards the left side of the console in the control tower. There were structural posts in the windows around the tower that obscured the view of parts of the airport from the SMC. Examination of the SMC position revealed that the intersection of taxiways Alpha, Echo and Foxtrot could periodically become obscured from the view of the SMC, depending on how the controller was seated in the SMC position (Figure 3). Further, the angle from the SMC position to the intersection of the taxiways made any visual assessment of the position of an aircraft on taxiway Echo, relative to taxiway Alpha, difficult to judge. The SMC reported that he could see both the 767 on taxiway Echo, and the 747 taxiing along taxiway Alpha although he could not determine the extent to which the 767 was protruding into taxiway Alpha.

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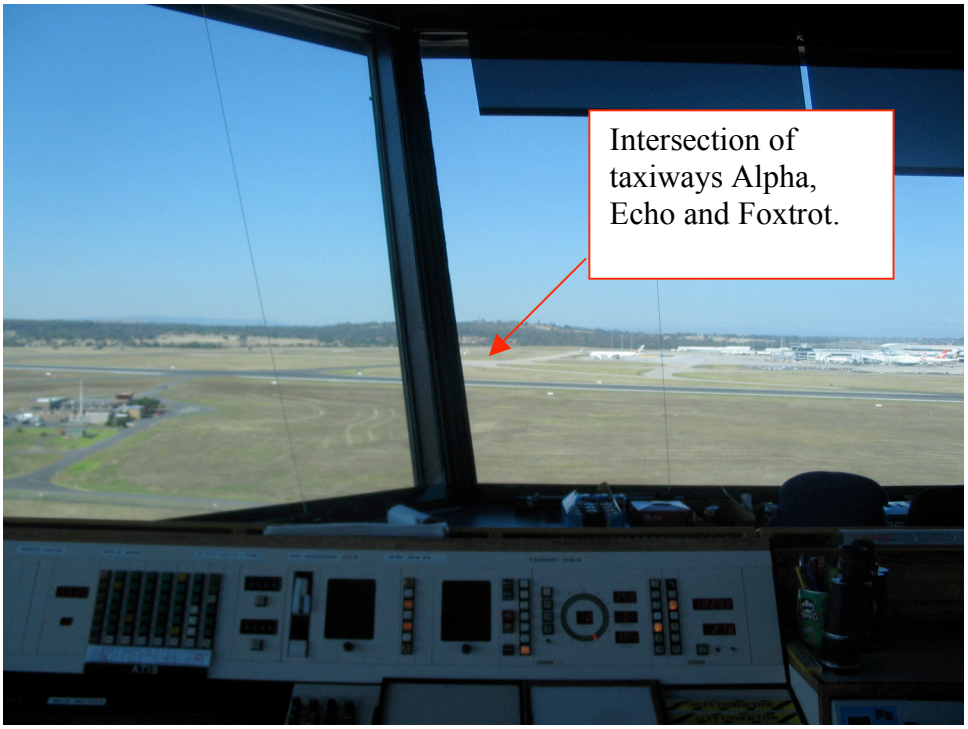
2 ENR (En Route) 1.4 section 2.2.1 (effective 24 November 2005), stated that 'the pilot must maintain separation while complying with clearances and instructions'.

3 Federal Aviation Administration Aeronautical Information Manual, Official Guide to Basic Flight Information and ATC Procedures, Chapter 4, Air Traffic Control, section 4-3-18 (effective 16 February 2006), stated that 'Although an ATC clearance is issued for taxiing purposes…it is the responsibility of the pilot to avoid collision with other aircraft.'

Figure 3: View from SMC position in the control tower looking north-east



The 747 flight crew reported that they were appropriately rested and were fit for duty at the time of the occurrence. They were scheduled to remain overnight in Sydney before continuing on to Los Angeles. The pilots were on schedule and reported being under no pressure to continue to taxi, rather than wait for the 767 to taxi clear of taxiway Alpha.

The weather was reported as fine and clear and was not considered to be a factor that contributed to the accident[4].

4 Although the photograph shown at Figure 3 was taken some time after the accident, it is indicative of the reported weather conditions that prevailed at the time of the accident.

ANALYSIS

In the circumstances, the provision of information to the crew of the 747 about the location and intentions of the 767 by the surface movement controller (SMC) was not required. The 747 crew was aware of the 767, and chose to pass behind the 767 rather than either wait on taxiway Alpha until the 767 was no longer obstructing the taxiway or request further advice from the SMC.

Although there was enough room to safely manoeuvre in the taxiway intersection to the south and east of the 767, the intersection was narrower to the north of taxiway Echo, which reduced the space available for the 747 to pass behind the protruding tail section of the 767.

Once the pilot in command of the 747 deviated from the taxi clearance issued by the SMC and turned the 747 right into taxiway Echo he became solely responsible for establishing and maintaining separation between the 747 and the 767. He also compromised any situational awareness assistance that might otherwise have been afforded by the taxiway markings at Melbourne Airport.

The decision by the pilot in command of the 747 to deviate off the centreline of taxiway Alpha and taxi behind the 767 did not comply with the taxi clearance issued by the SMC. It was based on his assessment that it was safe to do so. The pilot in command of the 747 misjudged the distance between the wingtip of the 747 and the right horizontal stabiliser of the 767, which resulted in the collision.

APPENDIX A: Melbourne Airport Taxiways and Runways. Insert: Intersection of Taxiways Alpha, Echo and Foxtrot