



Australian Government
Australian Transport Safety Bureau

Fuel flight planning error involving Airbus A320, VH-VNJ

Sydney Airport, New South Wales | 3 March 2014



Investigation

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Postal address: PO Box 967, Civic Square ACT 2608
Office: 62 Northbourne Avenue Canberra, Australian Capital Territory 2601
Telephone: 1800 020 616, from overseas +61 2 6257 4150 (24 hours)
Accident and incident notification: 1800 011 034 (24 hours)
Facsimile: 02 6247 3117, from overseas +61 2 6247 3117
Email: atsbinfo@atsb.gov.au
Internet: www.atsb.gov.au

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Addendum

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Safety summary

What happened

On 3 March 2014, the flight crew of a Tiger Airways Australia Pty Ltd (Tigerair) Airbus A320 were preparing for a scheduled passenger service from Sydney, New South Wales to Perth, Western Australia. The flight crew had earlier completed uneventful sectors from Sydney to the Gold Coast, Queensland, and return. As part of that preparation, the flight crew reviewed the operational flight plan (OFP) for the sector. The OFP was produced by the operator's Operations Control Centre. That OFP contained significant errors in the aircraft weights, and as a consequence the required fuel upload for the sector was also significantly in error. The aircraft captain chose to re-calculate the required fuel load using resources available on the flight deck. The resultant required fuel load calculated and uplifted by the captain did not include the operator's requirement to carry a '60 minute top-up' additional fuel, resulting in the fuel upload being below that required under the operator's operations manual. The aircraft's flight computers, however, identified that the aircraft would arrive at its destination with more than the minimum *inflight* fuel requirements. During the subsequent flight, the flight crew regularly checked the fuel usage and expected arrival fuel at Perth. All company and regulatory inflight fuel requirements for the flight from Sydney to Perth were met, and the aircraft landed with fuel in excess of the required fuel reserves.

What the ATSB found

There were deficiencies within the processes and procedures used by the operator's Operations Control Centre that permitted incorrect plans to be produced and subsequently provided to flight crew. This increased the risk that, in the time pressured environment of pre-flight planning, flight crews could either overlook incorrect data and accept an incorrect flight plan, or err in the calculation of the required fuel upload. Further, the operator provided limited guidance and assistance for flight crews on the processes and procedures for correcting identified fuel planning errors. For the occurrence flight crew, this lack of guidance, as well as the remoteness of resources that could assist, resulted in the decision to determine a correct required fuel load calculation using only those resources available on the flight deck. Due to the short layover between sectors, which was further aggravated by curfew restrictions, this increased the risk of critical fuel planning considerations being overlooked.

Safety message

A correctly calculated flight plan not only provides assurance to both the captain and the operator that all operational factors likely to influence the flight have been considered and accounted for, it also forms an important inflight validation tool to allow crews to monitor and continually assess those decisions made at the pre-flight stage. Where variances are noted, timely alternative plans can be implemented to ensure that aircraft arrive at either the destination or an alternate aerodrome with required fuel reserves preserved.

The occurrence

On 3 March 2014, the flight crew of a Tigerair Airbus A320 were rostered to conduct three scheduled passenger services. The crew commenced duty at 1700 Australian Eastern Daylight-saving Time¹ in Sydney, New South Wales. The sectors were:

- Sydney to the Gold Coast, Queensland, with a departure time of 1800
- Gold Coast to Sydney, with a departure time of 2000
- Sydney to Perth, Western Australia, with a departure time of 2155.

At the commencement of duty, the flight crew received two of the three operational flight plans (OFP) for the upcoming sectors. The third was obtained about 10 minutes later. It was not until during the pre-flight stage of the third sector that the flight crew identified gross errors in the OFP for the Sydney to Perth sector. These errors resulted in a significant error in the calculated fuel required for the Sydney to Perth sector. Due to time and resource availability constraints, the captain chose to re-calculate the required fuel load using resources available on the flight deck. The captain did not upload sufficient fuel to meet the operator's flight fuel requirements. The flight proceeded to Perth uneventfully and landed with a fuel reserve greater than that required under the regulations.

The operational flight plan

The OFP contained essential information necessary for the conduct of the relevant flight. It also formed the basis for the air traffic services (ATS) flight plan, which was included within the OFP. The OFP was required to contain specific information concerning that flight, including:

- aircraft registration, type and variant
- air traffic services flight plan data, including flight identification, place and time of departure, route, and place and time of arrival
- aircraft weight data, including dry operating weight, number of passengers and payload weight, take-off weight and landing weight
- fuel calculations, including a breakdown of all specific fuel quantities as required by regulation and the operator's operations manual (OM)
- route segments with waypoints, distances, time intervals and tracks, planned cruising speed, altitudes/flight levels, and expected wind velocity
- for all en-route waypoints, a section for recording the estimated time of arrival, actual time of arrival and fuel remaining at that waypoint.

The section of the OFP that detailed the aircraft weights and fuel calculation also included information on the effect that an increase in weight would have on fuel burned during flight.

For multi-sector trips, all OFPs were required to be delivered via email to the operating flight crew at least 90 minutes before the scheduled start of the first flight.² Flight crews were required to check the OFP for correct fuel load, flight details, as well as a number of other essential flight planning components.

Operations control centre

Flight planning was performed by the operator's Operations Control Centre (OCC), which was located in Melbourne. The OCC was 'responsible for the safe, efficient and cost effective utilisation of aircraft and flight crews ensuring that regulatory compliance and company requirements are

¹ Australian Eastern Daylight-saving Time (AEDT) was Coordinated Universal Time (UTC) + 11 hours.

² Crews were required to sign on for duty 60 minutes before the start of the first flight.

achieved'.³ In fulfilling these functions, operations controllers (OC) were responsible for various operational tasks, including flight planning and load control for each flight. With respect to flight planning, OCs produced a number of products that were necessary for the proper planning and conduct of flights, including the OFP. On completion of the OFP, the OC was required to email the OFP to the flight crew and submit the ATS flight plan to the relevant ATS authority.

The operator had a structured training program for OCs that led to the issue of a certificate of competency. Once qualified, OCs were then required to maintain competency through the periodic completion of a recurrent training program.

The operator's fuel policy in the operations manual

Background

The Civil Aviation Regulations (1988) (CAR) rr. 233-234 required the aircraft captain and the operator to ensure that an aircraft has sufficient fuel supplies for the safe conduct of the flight. CAR r. 234 also enabled the publication of fuel guidelines, which were contained within Civil Aviation Advisory Publication (CAAP) 234-1 *Guidelines for aircraft fuel requirements*.

CAAP 234-1 included guidelines for calculating the fuel required for a flight, as well as specific inflight fuel requirements. A component of the required fuel calculation, as well as inflight fuel requirement, was the fixed fuel reserve (FFR). The FFR was an amount of fuel that would enable 30 minutes of holding at 1,500 ft above an aerodrome at standard atmospheric conditions.

For an aircraft operator, CAR rr. 215 and 220 required:

- the operator to provide an OM
- the operator's staff to comply with the OM
- that the OM include specific instructions for the computation of fuel quantities for all routes.

The operator's fuel policy was contained within the OM Part A. It covered a number of general topics, including the captain's authority, the fuel calculation, fuel monitoring, and in-flight fuel monitoring.

Captain's authority

This section of the OM contained an overarching policy concerning fuel. It included the following statement:

It is the Captain's responsibility to ensure that sufficient fuel is carried to operate the aircraft safely and efficiently in accordance with Company policy and procedures. Adequate fuel to cover the requirements of the trip, Variable Reserve, alternate (when required), reserve, required holding and taxi must be loaded prior to departure. Captains will uplift the minimum fuel quantity listed on the authorised OFP to achieve the operational requirements...

Fuel calculation

The section titled 'fuel calculation' was the means by which the OM detailed the fuel necessary for a flight, thereby meeting the CAR requirement that sufficient fuel be carried. It reflected the guidelines contained in CAAP 234-1. This section contained the components for determining the fuel required for a flight, and included the following:

- taxi fuel
- expected fuel usage for the flight
- should an alternate be required, fuel to meet that alternate requirement

³ Tigerair Operations Control Centre Policy and Procedures Manual (OCCPPM).

- a variable fuel reserve of 10 per cent of the expected fuel usage and any additional alternate fuel (up to a maximum of 1,000 kg)
- a fixed reserve amount of 30 minutes fuel
- holding fuel, if traffic or weather conditions required it.

In addition, the policy required that if the sum (in minutes) of fixed reserve fuel plus any alternate fuel or holding fuel was less than 60 minutes, then an amount of fuel to reach that time was to be loaded. This extra fuel was known as the '60 minute top-up'. If the flight was limited by take-off performance or landing weight, the 60 minute top-up fuel was not to be applied before off-loading payload.

The fuel calculation in an OFP contained information on the expected increase in fuel burn for the flight that would result from an increase in take-off weight. The operator's fuel policy did not include any guidance on this information, such as:

- the limit to the accuracy of the information as take-off weight increases
- at what point any change in take-off weight becomes sufficient to require a new OFP to be produced.

Fuel monitoring

This section of the OM contained a number of before flight requirements, including that '[t]he fuel on board agrees with the figure on the OFP, load sheet and is sufficient for the proposed flight'.

Inflight fuel monitoring

This section of the OM contained specific inflight fuel requirements. This included that, at each check, the expected fuel remaining on touchdown at the destination exceeded any alternate fuel requirement, including alternate variable reserve, plus reserve fuel. Reserve fuel was not defined, however, this section also stated that '[i]t is a legal requirement to touch down with not less than 30 minutes fixed reserve fuel intact'.

The pre-flight planning and the first two sectors

The OC responsible for producing the three OFPs and associated documentation recalled that the OFPs were produced and ready for transmission via email before 1800. These emails were recorded as being sent at 1636.

The captain recalled arriving at the operator's Sydney crewing office about 30 minutes early to commence flight preparation. On arrival, the OFPs for the first two sectors were available, but the third OFP for the Sydney to Perth sector was missing. The captain reported calling the OCC on two occasions to ascertain the whereabouts of the missing OFP. It was finally delivered, via email, 10 minutes after the scheduled sign-on time of 1700. The Captain stated that, due to the need to concentrate on the first sector, there was insufficient time to review the Sydney to Perth OFP. The intent was to review this OFP after completing the second, Gold Coast to Sydney, sector.

The crew departed Sydney for the Gold Coast on schedule. The Sydney to Gold Coast and return sectors were uneventful, with the aircraft arriving back into Sydney 15 minutes ahead of schedule, at 2105.

The Sydney to Perth sector

The incorrect OFP

On arrival back in Sydney the flight crew commenced preparations for the final sector to Perth. This commenced with a review of the sector's OFP. It was at that point that the flight crew first noticed that this OFP contained significant errors. The number of passengers recorded on the OFP was zero, as was the aircraft's payload. The OFP showed a trip fuel of 9,368 kg, and a

required fuel load of 12,296 kg. Finally, the fuel calculation section of the OFP stated that the additional fuel burn per 1,000 kg increase in take-off weight was 140 kg.

The actual passenger number was 177, representing a payload weight of 13,949 kg, while there was also additional payload in cargo totalling another 1,175 kg. The consequence of the omitted weight was that the fuel required for the flight was based on an aircraft weight that was significantly less than the actual weight. As a result, the fuel calculation figures were significantly less than that required for the flight. The OFP error meant that the fuel load would need to be recalculated before commencing the flight.

The curfew restrictions

Sydney airport curfew restrictions required weekday departing flights to be airborne no later than 2300. Additionally, departures between 2245 and 2300, known as the 'shoulder period', were required to use the southerly runways. When a departure was near the shoulder period and weather conditions required a northerly runway, aircraft were to commence taxi with sufficient time to ensure that the take-off commenced no later than 2245.

The captain reported that a few weeks earlier, another company flight had been refused permission to take off during the curfew shoulder period and had returned to the terminal, with a full load of passengers. That return to the terminal had resulted in significant disruption to both the passengers and the company's operation.

Recalculation of the required fuel

The captain reported that a number of considerations were critical in making the decision on whether to seek an updated OFP:

- As the new OFP would be emailed to the flight crew, access to a computer terminal was required to obtain a printed copy. Such facilities were only available in the Sydney terminal, which required a walk of about 10 minutes each way, and the time required for the OCC to deliver the new OFP was unknown.
- There were no operational support personnel at the terminal to assist the flight crew with the compilation of a new OFP. The personnel present were for passenger and loading services only.
- The airport weather information was reporting the wind as 020 degrees at 10 kt, requiring a departure to the north. Any delay obtaining a new printed OFP had the potential to infringe on the shoulder period.
- The actual passenger and cargo load was available to the flight crew through the load sheet data provided by the terminal staff. This load sheet data provided accurate aircraft weights.
- The aircraft's Flight Management Guidance System (FMGS) had the functionality and capacity to calculate an accurate required fuel load when the aircraft weights and many other variables regarding the route and flight were loaded into the system.
- The weather at Perth and at suitable en-route diversion airports was fine.

The OFP included the contact phone number for the OC who produced it, however, the OC was not contacted by the flight crew after the OFP errors were identified. The captain also had access to the phone number of the Duty Pilot, whose role included providing assistance to flight crew. The captain stated that attempts were made to contact the Duty Pilot, but that these calls were not answered.

Having discussed the matter with the first officer, the captain elected to determine the fuel load requirements using resources available on the aircraft's flight deck, in this case the FMGS, and proceed with the flight to Perth without seeking an updated OFP with a hard copy. The captain and first officer independently calculated a required fuel load, and from these calculations and subsequent discussions the captain decided to upload 13.6 t of fuel. The captain was satisfied that this amount of fuel sufficiently met variable and mandatory fixed reserve fuel requirements, and

that a number of airports along the route provided suitable options should an in-flight diversion become necessary.

Records identified that refuelling was completed at 2132, with the final fuel load being 13,520 kg. The captain stated that the FMGS was, at that time, showing an arrival fuel at Perth of 2.4 t.

The flight

The aircraft commenced taxiing at 2158. Take-off commenced at 2210.

The flight crew reported that, during the flight, they independently monitored the amount of fuel on board and fuel usage, knowing that the original OFP had been in error. As part of the process of continually monitoring the remaining fuel on board the aircraft, the flight crew recorded the fuel remaining at the top of the climb from Sydney, and at a number of waypoints along the route. They then reconciled the fuel remaining against the figures on the OFP⁴ for each leg and monitored the FMGS calculated arrival fuel to ensure the flight met the regulatory requirements. The flight crew also reported carrying out point-of-no-return calculations to ensure that, when the aircraft reached the point where they would be committed to the destination, the weather reports and fuel amounts would be sufficient to allow a safe landing. The monitoring process used by the flight crew was in excess of the OM's requirement for inflight fuel monitoring, which for a flight from Sydney to Perth required a fuel check about every hour.

The flight continued uneventfully and the aircraft landed in Perth with about 1.9 t of fuel remaining. The captain subsequently reported the OFP inaccuracy to the operator, and in particular the concern about the safety implications if OFP inaccuracies were undetected by flight crew.

The operator's internal investigation and audits

Operator's investigation into the occurrence

In an internal report on the occurrence, the operator found that the:

- flight crew had been issued with an incorrect OFP that did not have any passengers or cargo included in the aircraft's weight
- flight crew elected to add additional fuel above the figure required by the incorrect OFP, however, the amount of fuel the aircraft departed with did not meet the operator's departure fuel 60 minute top-up requirement
- the correct 30 minute FFR for the adjusted aircraft weight was 1,139 kg
- the OFP had been delivered to the crew later than the time required by the OCCPPM
- the aircraft landed with 1,914 kg of fuel, which was above that required under the regulations.

The report made a number of recommendations, including that:

- the operator reinforce to flight crews:
 - the need to exercise vigilance in checking OFP data
 - that the duty pilot was an added resource available to assist flight crews
 - the need to request a new OFP where gross error exists
- OCC personnel receive adequate training in preparation of OFP's using the new flight planning system.

The report stated that the correct minimum fuel upload for the flight was 15,343 kg. It also identified a number of areas requiring further investigation, including any guidance provided to flight crew regarding allowable errors in the OFP. With respect to this, the report stated that an

⁴ The OFP route segment fuel burn calculations were not correct due to the aircraft weight errors, and therefore were not representative of the actual fuel burn for each leg.

examination of company documentation indicated that there was no specific guidance provided on allowable payload variations, nor on when a re-issued OFP was required.

Operator’s pre-occurrence audit of the OCC

An internal audit of the OCC conducted in September 2013 stated that the ‘overall operation of the OCC was considered to be satisfactory’. Management and the OCC staff were stated to be experienced and competent, while the operators demonstrated good knowledge of their duties and responsibilities. The audit contained two findings of an administrative nature, neither of which had a relationship to the production of OFPs.

Operator’s post-occurrence audit of the OCC

The operator’s internal investigation spawned a further internal investigation into errors in OFP’s issued to flight crew, as well as a further audit of the OCC. The error investigation identified a further three reported occurrences during 2014 of OFP’s that contained errors similar to that encountered by the occurrence flight crew.

The audit, conducted in July 2014, included the following statement in the executive summary:

Given the continued use of the Geneva (Day of Operations planning) and Navtech (Flight Planning) systems into the near term, the main areas of risk are in process development and staff training. In particular, flight plan preparation is considered to be of medium risk.

This statement appeared to relate to a number of audit observations and comments. The observations stated that there was little automated integration between the numerous systems that were used by the OCC staff during the production of an OFP. This resulted in a high level of manual data entry with the consequent high likelihood of errors being encountered. The comments identified that data update processes within the systems could result in incorrect data being processed manually into flight plans. The auditor also commented that the work environment (high workload and numerous distractions) could adversely affect the OFP production process.

With respect to the automated integration of the OCC systems, the audit also stated that the OCC introduced a new flight planning software package about 7 months before the occurrence. This resulted in many of the previously automated processes used to complete an OFP either being discontinued or becoming unstable. Further, when errors occurred in the production of an OFP, there were no automated warnings to alert the OC to this condition, resulting in error detection being reliant on the vigilance of the individual. The OC who produced the OFPs for the subject three sectors had not completed a formal training program for the new software, but had been provided a few ad hoc hands-on training sessions with an OCC duty manager. The July 2014 internal audit also noted that the OCC’s daily output of OFPs had increased substantially over the previous few years.

The audit contained four findings, none of which related to the processes involved in producing an OFP. One finding, concerning staff training records and syllabus, indirectly related to the internal investigation report’s recommendation that OCC staff receive adequate training in the preparation of an OFP.

Flight planning functions post February 2015

Tigerair advised that, as a result of the completed acquisition of Tigerair by the Virgin Australia Group in February 2015, Virgin Australia has subsequently assumed responsibility for all Tigerair flight planning functions.

Safety analysis

Tiger Airways Australia Pty Ltd used an Operations Control Centre (OCC) to provide flight planning support for the flight crew of their regular public transport flights. Operations controllers (OC) were responsible for the production of flight planning and supporting documentation, which included generating the operational flight plan (OFP) and associated air traffic services flight plan.

There are various reasons for using an OCC for flight planning, including cost and duty time considerations. The use of an OCC system to produce flight planning products enables operators to reduce the flight crew's flight planning task from gathering information and developing the flight plan, to one of reviewing prepared documentation and a finalised OFP. This has enabled operators to significantly reduce the time spent by flight crew in the flight preparation phase. Under regulation and the operator's own policy and procedures, however, the aircraft captain was responsible for the proper planning and conduct of a flight.

The production of a correct OFP is essential for the safe completion of a flight. It ensures, amongst other things, that:

- the calculated fuel upload contains all required components
- the fuel upload is sufficient for the required flight given the conditions expected for that flight
- there is an accurate method of tracking inflight fuel usage
- the aircraft will arrive at the destination with sufficient fuel to ensure a safe landing.

Fuel requirements

In accordance with the Civil Aviation Regulations (1988) rr. 215 and 220, the relevant fuel requirements for the occurrence flight were contained within the operator's operation manual (OM). The OM contained two distinct fuel requirements for a flight that were differentiated by temporal criteria:

- the flight planning fuel requirements, referred to in the OM as the 'fuel calculation'
- the in-flight fuel requirements.

Pre-flight fuel requirement

The fuel calculation required the flight crew of the occurrence flight to upload the '60 minute top-up' fuel as part of the flight planning fuel calculation. With respect to the occurrence flight, the OCC provided the flight crew with an OFP that contained gross errors in the aircraft's payload and resultant operating weights. This in turn led to a fuel calculation that was significantly in error. These errors were detected by the flight crew during pre-flight. As a result, the flight crew re-calculated the required fuel upload based on actual load data information using resources available on the flight deck, and in particular the aircraft's flight computer. The required fuel load calculated and uplifted by the aircraft captain did not include the operator's requirement to carry a '60 minute top-up' additional fuel, resulting in the aircraft's uploaded fuel being below that required under the operator's OM.

Inflight fuel requirement

While the aircraft did not meet the flight planning fuel upload requirement, all company and regulatory in-flight fuel requirements were met for the flight from Sydney to Perth. The flight crew monitored the fuel usage during the Sydney to Perth sector in accordance with, and most likely in excess of, the OM inflight fuel monitoring requirements. This, and the actual arrival fuel being in excess of the regulatory and OM required minimum fuel reserves, indicate that the aircraft met the inflight fuel requirements for the Perth to Sydney sector.

The 60 minute top-up requirement

There were a number of factors about the top-up requirement that are relevant:

- This additional fuel represented a more conservative approach to fuel safety than that contained in the guidance material provided by the Civil Aviation Advisory Publication 234-1.
- The top-up fuel component was not a component of the inflight fuel requirement.
- The safety basis of the top-up requirement can be diminished due to the operator's policy of offloading this fuel component instead of payload when aircraft operating limitations became an issue.

OCC deficiencies

The inaccurate OFP was the result of deficiencies within the processes and procedures used by the operator's OCC. While the operator's 2013 internal audit of the OCC did not identify any deficiencies in processes or procedures, particularly along the lines of those exposed by this occurrence, the subsequent investigations initiated as a result of the occurrence and the 2014 audit identified a number of relevant deficiencies.

The 2014 audit identified an increased risk to the production of an OFP due to process issues and training of OCC staff. Specifically related to this occurrence were the audit's comments and observations identifying that there were no system defences able to detect errors introduced through manual data entry or automated updating before the OFP was transmitted to flight crew. Therefore, the principal defence in identifying any errors was the vigilance of the flight crew. This increased the risk that, in a time pressured environment of pre-flight planning, flight crews could either overlook incorrect data and accept an incorrect OFP, or as occurred in this occurrence, identify the error and be required to calculate the fuel upload requirement themselves. However, on this occasion and the other three occasions identified in the internal investigation, the flight crew did discover the error.

Guidance on OFP errors

Correcting the occurrence flight's OFP error was further complicated by the limited guidance and assistance that the operator provided to correct errors in fuel calculation. While the OFP contained information with respect to increased fuel burn for every one tonne increase in take-off weight, there was no guidance on the limits to which this information could be used, nor at what point gross error in the take-off weight required a new OFP to be produced. For the occurrence flight crew, this lack of guidance, as well as the remoteness of resources that could assist, influenced the decision to determine a correct required fuel load calculation using only those resources available on the flight deck. Due to the short layover between sectors, which was in turn further aggravated by curfew restrictions, this increased the risk of critical fuel planning considerations being overlooked.

Findings

From the evidence available, the following findings are made with respect to the flight planning error involving Airbus A320 registered VH-VNJ that occurred at Sydney airport, New South Wales, on 3 March 2014. These findings should not be read as apportioning blame or liability to any particular organisation or individual.

Contributing factors

- On identifying that the operational flight plan for the Sydney to Perth sector had been based on an incorrect aircraft weights, resulting in the fuel calculation and subsequent fuel plan being significantly in error, the aircraft captain chose to re-calculate the required fuel load using resources available on the flight deck. The required fuel load calculated and uplifted did not include the operator's requirement to carry a '60 minute top-up' additional fuel, resulting in the aircraft departing with a fuel load that was below that required under the company's operations manual.
- There were deficiencies within the processes and procedures used by the operator's Operational Control Centre that permitted incorrect operational flight plans to be produced and subsequently provided to flight crew.
- The operator provided limited guidance and assistance for flight crews on the processes and procedures for correcting identified fuel planning errors. For the occurrence flight crew, this lack of guidance, as well as the remoteness of resources that could assist, resulted in the decision to determine a correct required fuel load calculation using only those resources available on the flight deck.

Other findings

- All company and regulatory in-flight fuel requirements for the flight from Sydney to Perth were met, and the aircraft landed with fuel in excess of the required fuel reserves.

General details

Occurrence details

Date and time:	3 March 2014 – 1632 AEDT	
Occurrence category:	Incident	
Primary occurrence type:	Flight planning error	
Location:	Sydney Airport, New South Wales	
	Latitude: 33° 56.6' S	Longitude: 151° 10.8' E

Aircraft details

Manufacturer and model:	Airbus A320	
Year of manufacture:	2006	
Registration:	VH-VNJ	
Operator:	Tiger Airways Australia Pty Ltd	
Serial number:	2982	
Type of operation:	High Capacity Regular Public Transport	
Persons on board:	Crew – 6	Passengers – 177
Injuries:	Crew – 0	Passengers – 0
Damage:	None	

Sources and submissions

Sources of information

The sources of information during the investigation included the:

- The captain of VH-VNJ
- Tiger Airways Australia Pty Ltd
- The Civil Aviation Safety Authority

Submissions

Under Part 4, Division 2 (Investigation Reports), Section 26 of the *Transport Safety Investigation Act 2003* (the Act), the Australian Transport Safety Bureau (ATSB) may provide a draft report, on a confidential basis, to any person whom the ATSB considers appropriate. Section 26 (1) (a) of the Act allows a person receiving a draft report to make submissions to the ATSB about the draft report.

A draft of this report was provided to the Civil Aviation Safety Authority, the crew of VH-VNJ and Tiger Airways Australia Pty Ltd.

Submissions were received from the aircraft captain, Tiger Airways Australia Pty Ltd, and the Civil Aviation Safety Authority. The submissions were reviewed and where considered appropriate, the text of the report was amended accordingly.

Australian Transport Safety Bureau

The Australian Transport Safety Bureau (ATSB) is an independent Commonwealth Government statutory agency. The ATSB is governed by a Commission and is entirely separate from transport regulators, policy makers and service providers. The ATSB's function is to improve safety and public confidence in the aviation, marine and rail modes of transport through excellence in: independent investigation of transport accidents and other safety occurrences; safety data recording, analysis and research; fostering safety awareness, knowledge and action.

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 operations involving the travelling public.

The ATSB performs its functions in accordance with the provisions of the *Transport Safety Investigation Act 2003* and Regulations and, where applicable, relevant international agreements.

Purpose of safety investigations

The object of a safety investigation is to identify and reduce safety-related risk. ATSB investigations determine and communicate the factors related to the transport safety matter being investigated.

It is not a function of the ATSB to apportion blame or determine liability. At the same time, an investigation report must include factual material of sufficient weight to support the analysis and findings. 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.

Developing safety action

Central to the ATSB's investigation of transport safety matters is the early identification of safety issues in the transport environment. The ATSB prefers to encourage the relevant organisation(s) to initiate proactive safety action that addresses safety issues. Nevertheless, the ATSB may use its power to make a formal safety recommendation either during or at the end of an investigation, depending on the level of risk associated with a safety issue and the extent of corrective action undertaken by the relevant organisation.

When safety recommendations are issued, they focus on clearly describing the safety issue of concern, rather than providing instructions or opinions on a preferred method of corrective action. As with equivalent overseas organisations, the ATSB has no power to enforce the implementation of its recommendations. It is a matter for the body to which an ATSB recommendation is directed to assess the costs and benefits of any particular means of addressing a safety issue.

When the ATSB issues a safety recommendation to a person, organisation or agency, they must provide a written response within 90 days. That response must indicate whether they accept the recommendation, any reasons for not accepting part or all of the recommendation, and details of any proposed safety action to give effect to the recommendation.

The ATSB can also issue safety advisory notices suggesting that an organisation or an industry sector consider a safety issue and take action where it believes it appropriate. There is no requirement for a formal response to an advisory notice, although the ATSB will publish any response it receives.

Australian Transport Safety Bureau

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Investigation

ATSB Transport Safety Report Aviation Occurrence Investigation

Fuel flight planning error involving Airbus A320, VH-VNU
Sydney Airport, New South Wales on 3 March 2014

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