Australian Government
Australian Transport Safety Bureau

Loading related events involving a Boeing 737, VH-YIR, and an Airbus A330, VH-XFE

Bali International Airport, Indonesia on 26 May and Perth Airport, Western Australia on 16 June 2014

ATSB Transport Safety Report
Aviation Occurrence Investigation
AO-2014-110
Final – 3 December 2014

Released in accordance with section 25 of the *Transport Safety Investigation Act 2003*

Publishing information

Published by: Australian Transport Safety Bureau
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

Addendum

Page	Change	Date

Two loading related events involving a Boeing 737, VH-YIR and an Airbus A330, VH-XFE

Occurrence 1: Boeing 737, VH-YIR

What happened (Bali)

On 26 May 2014, a Boeing 737 aircraft, registered VH-YIR, operated by Virgin Australia, was being loaded at Bali International Airport for a flight to Melbourne, Victoria. The flight had been delayed due to a series of disruptions following the cancellation of the previous day's flight to Melbourne. A breakdown of the baggage belt at Bali airport exacerbated the difficulty in loading and reconciling passenger baggage. A scheduled closure of the runway and airport curfew created time pressure for the ground staff who were manually re-tagging bags on the airport apron for the departing flights.

After a delay of about 30 minutes, the loading supervisor advised the captain that they were working to reconcile the passenger baggage and that there were bags for an Adelaide flight scheduled to depart at about the same time, in amongst the bags for Melbourne. Due to the time restriction, the ground staff were unable to load all of the bags for the Melbourne flight before the aircraft had to be prepared for departure. The load controller assessed that a total of 93 bags had been loaded onto the aircraft and the flight documents were produced using that figure. The load controller then provided the load sheet to the loading supervisor.

As the aircraft communications addressing and reporting system (ACARS) printer on the aircraft was unserviceable, the loading supervisor handed two copies of the load sheet to the captain. The captain verified the load sheet, checked its validity, signed it and handed one copy back to the loading supervisor. The captain then used the load sheet data to calculate the trim and speed settings for take-off. The flight crew did not detect any abnormal aircraft handling or indications during the take-off or flight to Melbourne.

About 30 minutes after the aircraft departed Bali, the ground handler advised network operations and load control that the final baggage numbers were incorrect. The total number of bags loaded onto the aircraft was 189 instead of 93, with an estimated additional weight of about 1,600 kg. The load control team leader assessed that the additional baggage weight was acceptable for the flight, that adequate fuel had been uploaded to cater for the extra baggage weight, and elected not to advise the flight crew of the discrepancy.

At the time of the occurrence there was no formal procedure to advise flight crew of a loadsheet discrepancy detected during the flight. However, if the flight crew were advised of loadsheet discrepancy in-flight, it is envisaged that the additional weight figure would be used by flight crew to modify the approach speeds that had been generated based on the weight entered into the flight management computer prior to departure. For an extra weight of 1,600 kg, the captain reported that the approach speeds would normally increase by about 1-2 kt.

The ground staff in Melbourne were subsequently advised of the additional baggage, however during unloading no reconciliation was conducted to determine the exact number and location of the bags. It was later determined that, based on estimates, the aircraft remained within the weight and balance limitations throughout the flight and the additional weight would have had a negligible effect on the aircraft's take-off performance.

Occurrence 2: Airbus A330, VH-XFE

What happened (Perth)

On 15 June 2014, an Airbus A330 aircraft, registered VH-XFE, was being loaded for a Virgin Australia flight from Perth, Western Australia, to Brisbane, Queensland.

The load coordinator directed positioning of the ground service equipment at the rear hold only for the off-loading and loading of freight. He omitted to print and distribute the inbound load instruction (LI) sheet. The inbound load had been notated on the movement sheet[1] earlier that day, with no indication of any load arriving in the forward hold.

The load coordinator printed and distributed the outbound LI, on which no outbound items were allocated to the forward hold. The load coordinator then positioned the engineering stairs at the rear hold door. The forward hold was not opened or inspected at any time while the aircraft was on the apron at Perth Airport.

The deck loader operator then unloaded and loaded the rear hold in accordance with the instructions provided. The arrivals and departures checklist accurately indicated which tasks had been performed but not all of the items had been completed.

The aircraft loadsheet was then prepared and submitted to the captain. The flight departed at about 2245 Western Standard Time and landed in Brisbane without incident. The flight crew were not aware of any loading or weight and balance issues during the flight. During offloading, ground staff at Brisbane Airport found a crate of freight weighing 1,467 kg in the forward hold that had not been manifested and was supposed to have been offloaded in Perth prior to departure.

Safety action

Aircraft operator

As a result of these occurrences, Virgin Australia has advised the ATSB that they are taking the following safety actions:

Communication

An urgent memo (Hot Topic), was issued by the ground services provider to all A330 ports about checking aircraft holds and accurate completion of arrivals and departures checklists.

A Virgin Australia Safety Focus article – *Aircraft loading events* was released on 19 June 2014 and was required to be sighted and acknowledged by all staff.

A local memo was issued to all load supervisors at Bali International Airport to ensure reconciliation of baggage occurs for all flights.

Refresher training

Load Coordinator and Deck Loader Operator responsibilities specific to Perth operations were defined. Refresher sessions were to be held for staff holding those roles covering:

- Criticality of loading integrity and weight and balance.
- Processes and responsibilities as defined.
- Reinforcement and clarification of the safety importance of each role.
- Associated documentation and integrity of information including the use of load instruction and Arrivals and Departures checklist.

---

[1] Movement sheets are produced to display a summary of flight information including scheduled and estimated arrival and departure times, flight numbers and bay allocations, as a guide to all staff.

Inspections

Daily inspections of loading and unloading the A330 aircraft were to be conducted.

Port review

An extensive port review of Bali International Airport was conducted to identify key risks and causes of loading errors and development of an action plan to mitigate those risks.

Weight discrepancy procedures

An interim procedure has been implemented to advise flight crew of any weight discrepancy ground staff are alerted to. Formal policies are being developed to advise flight crew of weight discrepancies and the subsequent appropriate actions to be taken.

Safety message

The ATSB SafetyWatch highlights the broad safety concerns that come out of our investigation findings and from the occurrence data reported to us by industry. One of the safety concerns is about data input errors, www.atsb.gov.au/safetywatch/data-input-errors.aspx. Data input errors, such as the incorrect loading figures being used, occur for many different reasons. The consequences of these errors can include a range of aircraft handling and performance issues.

Accurate weight and balance information is essential for the safety of every flight. These incidents demonstrate the impact distractions such as time pressure and equipment malfunction can have on the accuracy of that information. Following standard procedures and checklists minimise the potential for error.

General details

Occurrence details – occurrence 1

Date and time:	26 May 2014 – 1831 UTC	
Occurrence category:	Incident	
Primary occurrence type:	Loading related event	
Location:	Bali International Airport, Indonesia	
	Latitude: 08° 44.88' S	Longitude: 115° 10.05' E

Aircraft details: VH-YIR

Manufacturer and model:	The Boeing Company 737-8FE	
Registration:	VH-YIR	
Operator:	Virgin Australia	
Serial number:	39925	
Type of operation:	Air transport high capacity	
Persons on board:	Crew – 6	Passengers – 161
Injuries:	Crew – Nil	Passengers – Nil
Damage:	Nil	

Occurrence details – occurrence 2

Date and time:	16 June 2014 – 2130 WST	
Occurrence category:	Incident	
Primary occurrence type:	Loading related event	
Location:	Perth Airport, Western Australia	
	Latitude: 31° 56.42' S	Longitude: 115° 58.02' E

Aircraft details: VH-XFE

Manufacturer and model:	Airbus A330-243	
Registration:	VH-XFE	
Operator:	Virgin Australia	
Serial number:	1319	
Type of operation:	Air transport high capacity	
Persons on board:	Crew – 10	Passengers – 143
Injuries:	Crew – Nil	Passengers – Nil
Damage:	Nil	

About the ATSB

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; and 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 fare-paying passenger operations.

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.

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

About this report

Decisions regarding whether to conduct an investigation, and the scope of an investigation, are based on many factors, including the level of safety benefit likely to be obtained from an investigation. For this occurrence, a limited-scope, fact-gathering investigation was conducted in order to produce a short summary report, and allow for greater industry awareness of potential safety issues and possible safety actions.