Australian Government
Australian Transport Safety Bureau

Loading event involving an Airbus A330, VH-QPJ

Bangkok, Thailand, on 23 July 2015

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Addendum

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Loading event involving an Airbus A330, VH-QPJ

What happened

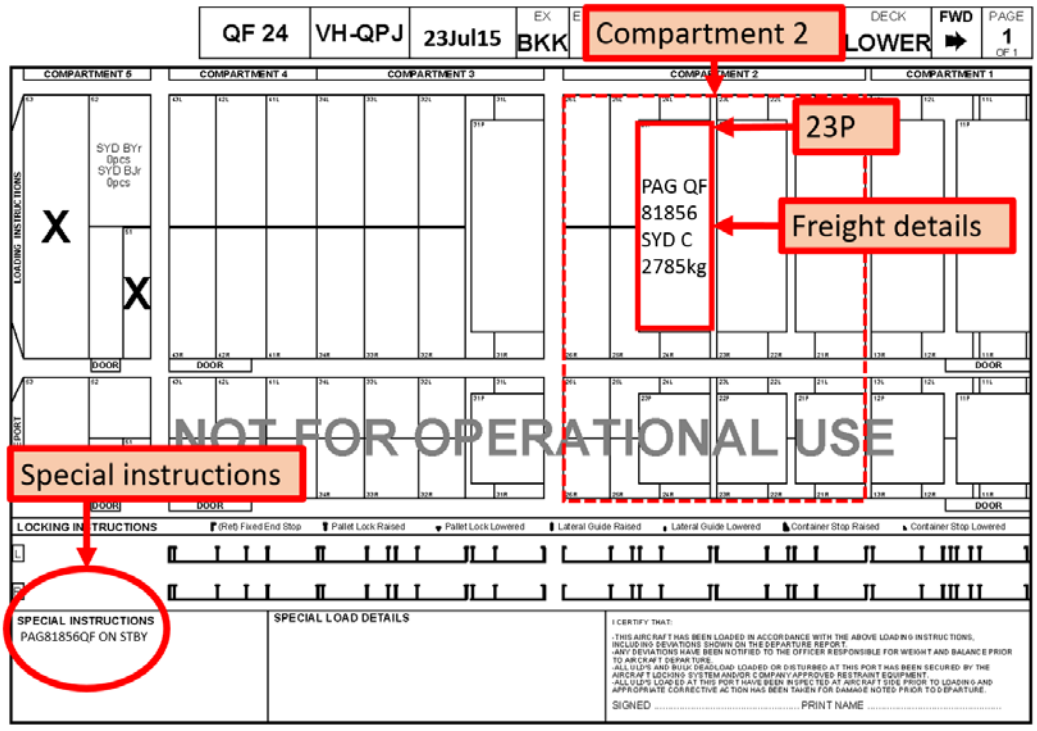
On 23 July 2015, an Airbus A330 aircraft, registered VH-QPJ and operated by Qantas Airways, was being loaded at Bangkok Airport, Thailand, prior to flying to Sydney, Australia. The ground-handling agent (and loading supervisor) was in Bangkok, and the load controller was in Warsaw, Poland.

The load controller in Warsaw issued a load instruction report (LIR) to the loading supervisor in Bangkok (Figure 1). The loading supervisor was required to load the aircraft in accordance with the LIR. The LIR also contained 'Special instructions' and 'Special load details'. The Special instructions for QF24 stated that the freight pallet shown on the LIR in position 23P was on standby. The loading supervisor then called the load controller by telephone to provide a 'partial read back'. The supervisor read back to the controller how the aircraft had been loaded, based on the LIR.

> The load instruction report (LIR) displayed a pictorial representation of the planned uplift. To maximise uplift within the aircraft's operational limitations, the report contained a set of loading instructions. These instructions identify positions within the aircraft hold for loading containers, baggage and freight.

The loading supervisor commenced by reading out the description and weight of the pallet loaded into position 23P. The load controller responded that the pallet in 23P was on standby as per the Special instructions, and directed the loading supervisor to offload that freight. The supervisor responded 'yes', and stated that the loading was in accordance with the LIR. The loading supervisor then continued to read the loading to the controller, again commencing with the pallet in 23P, followed by the rest of the loaded freight. The pallet in 23P remained loaded on the aircraft.

Figure 1: Load instruction report showing freight positions and special instructions



Source: Aircraft operator

After completion of the loading, the loading supervisor again phoned the load controller to provide the final read back of the loading. The loading supervisor stated 'forward compartment no change', to which the load controller responded clarifying position 23P was 'no fit'[1]. The loading supervisor replied, 'yeah, no change' and the load controller responded 'ok'.

The load controller then prepared the final loadsheet for the flight, based on the information provided over the phone by the loading supervisor. The load controller transmitted the final loadsheet to the flight crew via the Aircraft Communications Addressing and Reporting System (ACARS). The loadsheet included the calculated aircraft total and component weights including fuel, passenger, baggage and freight weights. It also provided the aircraft balance details including the aircraft take-off trim setting position.

The flight crew then used this data to calculate reference speeds for take-off, fuel consumption rates, and initial climb altitude. At about midday local time, the aircraft departed Bangkok for Sydney and the flight crew did not detect any abnormal flight characteristics, nor did they receive any warnings related to the aircraft's weight or balance.

After the flight had closed, the load control system automatically generated a Container Pallet Message (CPM) report. The report was based on the input from the load controller, and therefore did not include the pallet in 23P. The loading supervisor identified that the pallet in 23P was not on this report and contacted the load controller. The load controller confirmed that the pallet should have been offloaded, and was therefore not included in the uplift weight calculations. The load controller then contacted the Qantas Integrated Operations Control (IOC) in Sydney and advised them that a pallet had been loaded onto the aircraft, which was not included in the loadsheet, and that some operational limitations had been exceeded.

About 75 minutes after the aircraft departed from Bangkok, the IOC advised the aircraft flight crew of the error. The flight crew entered the amended aircraft weight into the flight management computer.

Load discrepancy

The weight of the standby pallet for 23P indicated on the LIR was 2,785 kg. The final loadsheet indicated 1,225 kg of freight in compartment 2. Compartment 2, depicted in Figure 1, included a number of freight positions including 23P. The calculation for total freight weight in Compartment 2 was based on freight loaded in positions 26L (615 kg), 26R (610 kg) and zero in 23P.

Based on the final loadsheet, the taxi weight was calculated to be 235,485 kg (maximum 233,900 kg) and the take-off weight was 232,300 kg (maximum 233,000 kg).

As a result of the discrepancies, Qantas advised that the maximum taxi weight had been exceeded by 1,585 kg, and the maximum take-off weight by 2,085 kg. The initial cruise altitude of 35,000 ft did not exceed the maximum altitude when the actual weight was subsequently entered into the aircraft flight management computer.

Qantas investigation

Qantas conducted an investigation into the incident, which included a review of the transfer of load control operations to Warsaw (from its previous location in Hong Kong), the systems supporting the load controller and loading supervisor, and their individual actions.

The investigation identified a number of safety factors that contributed to the incident. These included the following.

Depiction of standby freight

The load controller represented the standby freight as listed on the LIR, with the freight depicted in the loaded position, and a standby notation included in the Special Instructions box. The Qantas

[1] No fit means that the position is empty.

investigation found that was not a documented procedure for handling standby freight, but it was an accepted practice. The training of loading supervisors did not include how standby freight was to be documented on the LIR.

Communication

The communications between the loading supervisor and load controller were open to misinterpretation, had ambiguous phraseology, untimely transmissions, and did not involve a read-back hear-back process.

During the partial read back, the offload instruction caused confusion as to whether the pallet in 23P was to be loaded or not, and that confusion was not resolved.

During the final read back, a misunderstanding resulted from the load controller's use of the phrase 'no fit', meaning not loaded, and the loading supervisor's use of the phrase 'no change' meaning no change to the loading depicted on the LIR.

Training

Irregularities were identified with the training regarding LIR presentation and interpretation. Specifically, the training on procedures for handling standby items provided to load controllers did not cross-reference the training provided to loading supervisors and vice versa.

Safety actions

Whether or not the ATSB identifies safety issues in the course of an investigation, relevant organisations may proactively initiate safety action in order to reduce their safety risk. The ATSB has been advised of the following proactive safety action in response to this occurrence.

Aircraft operator

As a result of this occurrence, Qantas advised the ATSB that they are taking the following safety actions:

Immediate action taken

For all flights out of Bangkok, the loading supervisor must receive a scanned copy of the final LIR before transmitting the final loadsheet to the flight crew (by ACARS).

Standard phraseology is to be used for all read back communications.

Standby freight procedure

Load Control will document the following:

- procedures for listing standby freight in the LIR Special Instructions
- use of LIR Special Instructions
- sample communications for instructions to offload and the required response from loading supervisors.

Training

The training provided to load controllers and loading supervisors was to be coordinated. The training procedures will include a standardised process for handling standby freight.

A process for updating load control training material will also be implemented.

Firstload

An automated read back system, 'Firstload', is scheduled to be introduced to Bangkok and other international ports in November 2015. Firstload is an iPad-generated LIR and read back system. Implementation of the system will remove the requirement for verbal read backs.

Safety message

This incident highlights the importance, particularly when dealing with safety-critical data, for:

- standard phraseology in verbal communications
- ensuring a verbal instruction has been understood and complied with
- validating verbal communication with written documentation.

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 data input errors.

Data input errors, such as the wrong figure being used, happen for many reasons. The consequences of these errors can range from aborted take-offs, to collisions with the ground. More information is available in the ATSB safety research report, *Take-off performance calculation and entry errors: A global perspective*.

General details

Occurrence details

Date and time:	23 July 2015 – 2128 UTC	
Occurrence category:	Incident	
Primary occurrence type:	Loading related event	
Location:	Bangkok (Suvarnabhumi Airport), Thailand	
	Latitude: 13° 40.87' N	Longitude: 100° 44.83' E

Aircraft details

Manufacturer and model:	Airbus A330-303	
Registration:	VH-QPJ	
Operator:	Qantas Airways Limited	
Serial number:	0712	
Type of operation:	Air transport – passenger	
Persons on board:	Crew – Unknown	Passengers – Unknown
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.