Aviation Safety Investigation Report 199503409

Boeing Co B737

10 October 1995

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Aviation Safety Investigation Report 199503409

8279

Occurrence Number:	199503409	Occurrence Type:	Incident		
Location:	Sydney, Aerodron	ne			
State:	NSW	Inv Category:	3		
Date:	Tuesday 10 Octob	per 1995			
Time:	1441 hours	Time Zone	EST		
Highest Injury Level:	None				
Aircraft Manufacturer:	Boeing Co				
Aircraft Model:	737-376				
Aircraft Registration:	VH-TAI		S	Serial Number:	23483
Type of Operation:	Air Transport I Scheduled	High Capacity International	Passenger		
Damage to Aircraft:	Nil				
Departure Point:	Auckland New 2	Zealand			
Departure Time:	1134 EST				
Destination:	Sydney NSW				
Crew Details:					
	Hours on				
	Role	Class of Licence	Type Hours Total		

Approved for Release: Wednesday, September 18, 1996

Pilot-In-Command ATPL

FACTUAL INFORMATION

History of the flight

While the aircraft was in cruise at FL350, approaching waypoint MILUV, the flight crew was cleared by Brisbane sector control to track inbound to Sydney via the CHEZA 2 Standard Arrival Route (STAR). The controller advised the crew that the aircraft was radar identified and to expect runway 34R (right) for landing. Both pilots reviewed the approach information which was then programmed, including reference to runway 34R, into the aircraft's flight management computer.

The aircraft was subsequently cleared to descend to 8,000 ft and at about 35 NM east of Sydney the crew was instructed to contact Sydney Approach (north) on 124.4 MHz. On initial contact with Approach the crew was cleared to descend to 5,000 ft and was advised,"runway 34 left, localiser frequency 110.1, independent approach". In accordance with current procedures the crew acknowledged "5,000". Soon after, the controller cancelled the requirement to approach via the Cheza STAR and issued a vector for the approach.

When establishing communications with the Director on 125.3, the crew advised that they were visual with the runway in sight. They were issued further descent instructions and a vector to intercept the localiser final approach. At 12 NM from touchdown, they were instructed to join the centreline for runway left, make a visual approach and contact Sydney Tower on 120.5. The tower frequency was then confirmed at the request of the crew. Shortly after, the Director advised the tower that the aircraft had intercepted the final approach for runway 34R. The controllers resolved that, as there was no potential conflict with other aircraft, VH-TAI could continue its approach to runway right.

On initial contact with the tower the crew reported that they were on a six mile final approach for runway 34R and were subsequently cleared to land on that runway.

Flight crew information

The pilot in command was experienced in domestic airline operations into Sydney. This was the return leg of his first international flight. Both pilots had reviewed the required pre-flight briefing material, including audio-visual and printed route and terminal area information. The co-pilot was experienced, both in operations into Sydney and on international operations.

When informed that they had conducted an approach for the wrong runway, neither crew could recall being advised that they were to land on runway 34L. Both pilots were aware that the advice to "expect" runway 34R could be subject to change.

Communications

There were no identified technical deficiencies in any communications with the aircraft, nor was there evidence of over-transmitting or other interference with the broadcast or reception of critical information.

Parallel runway operations at Sydney

With the introduction of parallel runway operations, an agreement was established between Sydney and Brisbane Air Traffic Services to provide early advice of the landing runway at Sydney to all international arrivals from the north and the east. This agreement required that Brisbane Control advise aircraft of B767/A300 size and smaller to expect to land on runway 16L/34R and for larger aircraft to expect to land on runway 16R/34L.

The advice to flight crews of a landing runway, different from that for which an expectation had been provided, was not seen by the management of the Sydney district office of Airservices Australia to constitute a change of runway.

The processing of VH-TAI for runway 34L reflected the requirement for the aircraft to taxi to the international terminal and the lack of potential traffic conflictions.

When they were advised of runway 34L at both 35 NM and 12 NM, there was no requirement for the flight crew to read back the runway identifier. Current parallel runway operational procedures required only that pilots confirm "visual" and/or runway "left/right in sight" on first contact with the Director, or as soon as each is the case. When the crew of VH-TAI first contacted the Director at about 28 NM from touchdown, they reported visual, with the runway sighted. They did not identify the runway on which they were intending to land, nor did the Director request runway identification.

The investigation of this occurrence identified safety deficiencies in procedures relating to the operation of parallel runways at Sydney. Current operational documentation contain areas of ambiguity between standard operating procedures and instructions published in the AIP, AIP supplement H36/95, the Manual of Air Traffic Services and the Sydney Terminal Area Temporary Local Instructions. These ambiguities include the use in the various documents of the terms "expected", "nominated" and "specified" in reference to landing runways.

ANALYSIS:

The published standard operational procedures and instructions did not address the implications of providing a runway expectation, which was subject to change, without the provision of either change alert or read back requirements. Consequently, the significance of the change to the runway expectation was apparently not recognised by those involved. To contend that the advice of 34L as the landing runway did not constitute a runway change is to discount the effect of the provided expectation. It would then be reasonable to question the value of providing an early expectation of the landing runway beyond the orientation of either runway 16 or 34.

The Director and the tower controller were unaware until late in the approach that the crew was not intending to land on runway 34L. This was due, in part, to the lack of a requirement for the crew to read back the runway identifier when first advised by approach control. The omission by the crew and the Director to confirm the runway identifier when the crew reported having the runway in sight also delayed recognition of the error.

Neither pilot recognised the advice of the nomination of runway 34L for their arrival, although it had been given twice and included confirmation of the localiser and tower frequencies. This is probably a consequence of the lack of a specific alert of the change to the runway expectation without a requirement for the flight crew to read back the runway designator. The inclusion of the runway designator when the crew entered the arrival information in the flight management computer preceded the confirmation of the landing runway. This action and the crew's experience that B737 aircraft generally use runway 16L/34R would have served to reinforce to them that they were being processed to land on runway 34R.

The ambiguities in the Sydney parallel runway procedures terminology have the potential to lead to misunderstandings between controllers and pilots. This is due to the apparent interchangeability of terms used in the various documents to describe runway application.

CONCLUSIONS

Findings

1. The flight crew was familiar with parallel runway operations at Sydney.

2. Brisbane Control, in accordance with normal procedures, provided the flight crew with an expectation to land on runway 34R.

3. Current procedures did not require that controllers alert flight crews to any change to a landing runway expectation.

4. Sydney approach, and later the Director, advised the flight crew of runway 34L for their landing.

5. Current procedures did not require that flight crews read back runway information to confirm recognition of the correct runway.

6. On initial contact with the Director, the flight crew did not advise, and the Director did not confirm, their landing runway intention.

7. The flight crew intercepted the final approach for runway 34R and was subsequently cleared to land.

8. There was no breakdown in separation standards.

9. Instructions, concerning some aspects of parallel runway operations at Sydney, are inconsistent and ambiguious.

Significant factors

1. The flight crew did not recognise the change of runway advice.

2. The controllers were unaware, until late in the approach, that the flight crew intended to land on runway 34R.

Safety Action

As a result of the investigation into this occurrence, the Bureau of Air Safety Investigation issued the following interim recommendations:

IR950213 issued 3 January 1996

That the Civil Aviation Safety Authority and Airservices Australia jointly:

(i) remove from all published standard operating procedures, publications and instructions any ambiguities concerning the meanings of the terms "expected", "nominated" and "specified" in relation to landing runways.

(ii) amend the published standard operating procedures, publications and instructions to include advice to flight crew that the approach will involve a cross-over manoeuvre if their aircraft is required to cross a parallel approach path;

(iii) rectify the ambiguity in the present requirement for flight crew to report "visual" for independent visual approaches to parallel runways;

(iv) include a requirement for flight crews to read back the runway in aeromobile communications phraseology; and

(v) amend standard operating procedures to ensure that flight progress strip notations include verification of complete runway information transfer.

CASA response dated 12 March 1996.

I refer to your Interim Recommendation number IR950213 concerning the accident involving Boeing 737, VH-TAI at Sydney Airport on 0 October 1995. The Authority wishes to forward the following response.

Summary

- (i) Agreed. CASA and Airservices will review all documentation.
- (ii) Agreed. CASA will pursue with Airservices to provide necessary phraseology.
- (iii) CASA does not concur with BASI's concern.
- (iv) CASA and Airservices are working to implement new phraseologies.
- (v) This is an issue for Airservices to address.

Background to response

(i) CASA agrees that terminology used by ATC to identify the landing runway must be unambiguous. CASA will, with Airservices, review all documentation to satisfy this requirement.

(ii) In the case of a crossover to final, CASA agrees that ATC phraseology should positively alert a pilot to the situation. CASA will pursue this issue with Airservices to provide the necessary phraseology.

(iii) CASA is unable to understand BASI's concern with regard to the use of the phrase 'VISUAL'. It is only used by a pilot to indicate to a controller that the aircraft can proceed to destination in accordance with the visual approach requirements. When localizer tracking is required and the aircraft is established, pilots report 'ESTABLISHED' and when tracking visually to the runway pilots must report 'RUNWAY....LEFT/RIGHT IN SIGHT' when the appropriate runway is sighted. As each situation has a separate and district phrase, there is no ambiguity.

(iv) CASA and Airservices are working to implement ICAO phraseology in Australia. As runway readback is included in ICAO procedures, this recommendation will be satisfied when the new phraseologies are introduced.(v) Amending standard operating procedures to ensure that flight progress strip notations include verification of complete runway information transfer is an issue for Airservices to address.

Response status:Closed-Accepted.

Airservices Australia response dated 22 July 1996

I refer to your letter dated 3 January 1996, concerning interim recommendation IR950213, and relating to an incident involving parallel runway operations at Sydney airport. The particular circumstances relating to this incident were discussed at a special meeting of the Sydney Parallel Runway Operations Group, held on Tuesday 28th November 1995. This group comprises representatives from Airservices operational and policy areas, CASA and industry, and is charged with the development of standards and procedures for parallel runway operations.

Several recommendations were made at that meeting, proposing changes to AIP SUP H36/95, AIP, and Sydney Local Instructions, to preclude the possibility of a recurrence of this incident. It was felt, however, that major changes in reaction to a single incident should be considered carefully, and take into consideration the amount of pilot and controller training material in circulation, and the potential risks of changing procedures so soon after implementation of independent visual approaches.

In relation to your recommendation (i), references to runway expectation are being removed from approach and director phraseology. Instead, the runway will be specified without the word "expect", and any subsequent change will only take place with the concurrence of the pilot in command.

In relation to recommendation (ii), a controller awareness program will be initiated, with guidance material being published in an information circular, highlighting the need for caution and advice to pilots when crossing centrelines. It was felt, however, that pilots should normally be aware of centreline crossover through the controller advice of runway and circuit direction.

In relation to recommendation (iii), it is difficult to see that there is any ambiguity in the pilot report requirements. During conduct of any approaches, pilots established on a LLZ should report established. The LLZ established call confirms to the controller the track guidance being used, and the report of "visual" is required to enable the application of the standard. When a pilot is not tracking on the LLZ, the track guidance is confirmed by pilot report of "runway in sight".

In relation to recommendation (iv), consultations are continuing separately on a proposed completely revised AIP and MATS phraseology package. This review is intended to bring Australian phraseologies into line with ICAO, as far as is practicable. One of the items being considered as part of this process, is the ICAO recommended practice of runway readback. It was considered prudent to wait for the results of this project, instead of a uni lateral implementation at Sydney.

In relation to recommendation (v), any outcome from the revision of phraseologies that requires a pilot readback will be recorded on the flight progress strip as currently specified in MATS page 10-2-2 paragraph 32g.

It is proposed to review and re issue the AIP SUP relating to parallel runway operations in the near future, and account will be taken of the recommendations contained in BASI interim recommendation IR950213.

Response status: Closed Accepted