

Australian Government

Australian Transport Safety Bureau

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- independent investigation of transport accidents and other safety occurrences
- safety data recording, analysis and research
 fostering safety awareness, knowledge and action.

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Released in accordance with section 25 of the Transport Safety Investigation Act 2003 Breakdown of separation, VH-YVA/VH-CGF 59 km NE Armidale, New South Wales 8 October 2011

Abstract

At 1500:51 Eastern Daylight-saving Time on 8 October 2011, a breakdown of separation (BOS) occurred 59 km north-east of Armidale, New South Wales between a Boeing Company 737-8FE (737), registered VH-YVA, and a Gulfstream Aerospace Corporation Gulfstream IV (G-IV), registered VH-CGF.

Both aircraft were under radar surveillance and subject to an air traffic control (ATC) service. The aircraft were on reciprocal tracks on air routes that intersected about 35 NM (65 km) north-east of Armidale.

The Australian Transport Safety Bureau (ATSB) established that the controller's mental model for separation correctly identified the situation and included a plan to manage the traffic. However, the instructions that were issued to the pilot of the G-IV contradicted that mental model in that the controller cleared the G-IV for descent through and below the level being maintained by the 737. The progression towards the BOS continued when the controller did not recognise the error during the G-IV pilot's read-back of the clearance.

Ultimately, the controller's earlier correct level input into The Australian Advanced Air Traffic Th System allowed a system alerting function to Se activate. In response to that alert, the controller initiated compromised separation recovery _______ actions to recover the required separation 1 standard.

The ATSB identified a number of human factors and individual work processes that contributed to

the occurrence. In addition, a safety issue was identified in respect of differences in the traffic alert phraseology between the Manual of Air Traffic Services and Aeronautical Information Publication (AIP). These differences increased the risk of non-standard advice being provided to pilots by controllers during compromised separation recoveries.

ATSB TRANSPORT SAFETY REPORT

Final

Aviation Occurrence Investigation A0-2011-127

In response to this safety issue, Airservices Australia (Airservices) amended the AIP to enhance understanding of the criticality of any safety alerts and avoiding actions being provided to flight crew. This amendment came into effect on 28 June 12.

FACTUAL INFORMATION

Background

At 1500:51 Eastern Daylight-saving Time¹ on Saturday 8 October 2011, a breakdown of separation² (BOS) occurred 32 NM (59 km) northeast of Armidale, New South Wales (NSW) between a Boeing Company 737-8FE (737), registered VH-YVA, and a Gulfstream Aerospace Corporation Gulfstream IV (G-IV), registered VH-CGF.

The 737 was conducting a scheduled passenger service from Brisbane, Queensland (Qld) to

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

A failure to establish or maintain the specified separation standard between aircraft that are being provided with an air traffic service.

Sydney, NSW. The G-IV was operating a sequencing⁵ with the G-IV, which was 51 NM traffic control (ATC) service.

The 737 was established on air traffic service (ATS) upper level, one-way air route H62. At the time of the occurrence the 737 was positioned between instrument flight rules (IFR) waypoints TESSI and ADMAR at flight level (FL)³ 380. The 737's flight plan, including the use of air route H62, was the standard for aircraft departing Brisbane for Sydney.

The G-IV was established on ATS upper level, one-way air route Y23 and had been maintaining FL410. At the time of the occurrence the G-IV was 83 NM (154 km) north-east of Tamworth, NSW and had commenced descent to FL310. The G-IV's flight plan, including the use of air route Y23, was correct for aircraft departing Melbourne for the Gold Coast.

Air routes H62 and Y23 intersected at a position about 35 NM (65 km) north-east of Armidale.

Both aircraft were operating on reciprocal tracks⁴. established in the same area of controlled airspace and operating on the same ATC radio frequency at the time.

Sequence of events

At 1447:06 the pilot of the occurrence 737 contacted ATC and reported climbing to FL380.

The pilot of a second 737 that was on descent into Brisbane, reported to the controller at 1455:37 that they had experienced occasional moderate turbulence leaving FL350. The turbulence ceased as the aircraft was passing FL310.

The pilot of the G-IV contacted the controller at 1456:59 to report maintaining FL410. The controller issued arrival information for the Gold Coast with an instruction to maintain FL410.

third 737 to maintain maximum speed on descent the G-IV's cleared flight level field within The into the Gold Coast. This request was to facilitate

non-scheduled service from Melbourne, Victoria to (94 km) behind this 737. The pilot of the third Coolangatta (Gold Coast), Qld. The aircraft were 737 acknowledged the speed request, adding under radar surveillance and subject to an air that the available speed was subject to the reported turbulence. The controller advised that the turbulence should cease passing through FL310.

> At this time the G-IV was maintaining FL410 with a groundspeed of 500 kts and the occurrence 737 was maintaining FL380 with a groundspeed of 420 kts. The lateral distance between the G-IV and the occurrence 737 was 53.7 NM (99.5 km) (Figure 1).

Figure 1: Proximity of the aircraft at 1457:38



At 1458:01 the controller instructed the pilot of the G-IV to descend at a speed of not above 250 kts for sequencing. The pilot of the G-IV acknowledged this speed requirement.

The pilot of the G-IV requested descent into the Gold Coast at 1458:13. An examination of the relevant audio recording showed that the controller intended to separate the G-IV on descent with the occurrence 737. That intention was consistent with the controller's instruction to the pilot to descend to FL310 and to '...expect further descent in about 3 minutes'. The pilot of the G-IV correctly read back the descent clearance to FL310.

At 1457:38 the controller requested the pilot of a The controller immediately inputted FL390 into

³ At altitudes above 10,000 ft in Australia, an aircraft's height above mean sea level is referred to as a flight level (FL). FL 370 equates to 37,000 ft.

⁴ Reciprocal tracks are tracks that converge or diverge at an angle of 136° to 180° inclusive.

Sequencing is the assignation by ATC of a strict order in which aircraft under control are to proceed. That can include by selecting arrivals from a holding points and, with path-stretching if necessary, achieving correct time/distance separation.

Australian Advanced Air Traffic System (TAAATS).⁶ Shortly after, the distance between the aircraft was 42.4 NM (78.5 km) (Figure 2).





Identification of the conflict

The controller continued with other air traffic responsibilities until 1500:11 when the cleared level adherence monitoring (CLAM) alarm⁷ activated. This alarm alerted the controller that the G-IV had passed through the system-entered cleared level of FL390.

On noticing the CLAM alarm, the controller requested confirmation from the pilot of the G-IV that the aircraft was only descending to FL390. The pilot responded '... negative we were given FL310 and read back'. At this time the lateral distance between the occurrence 737 and the G-IV was 16.1 NM (29.8 km) (Figure 3).

- 6 The cleared flight level in TAAATS requires the controller to highlight the level as cleared. When the level is read back correctly by the crew the controller deselects the highlight, allowing the level to be displayed on the aircraft's data block on the controller's situational display.

Figure 3: Proximity of the aircraft at 1500:11



At 1500:25 the controller instructed the pilot of the G-IV to turn left heading 270° and reissued descent to FL310. A traffic alert was also provided on the occurrence 737, which was in the G-IV's 11 o'clock position⁸ at 7 NM (13 km).

At 1500:31 the occurrence 737 was maintaining FL380 and the G-IV was passing through FL380. The aircraft were 11.1 NM (20.5 km) apart, with a closing speed of 930 kts (Figure 4).

Figure 4: Proximity of the aircraft at 1500:31



A breakdown of separation occurred at 1500:51 (Figure 5), when the radar distance between the aircraft reduced to 4.8 NM (8.9 km) with a coincident vertical separation of about 800 ft (244 m). The appropriate separation standards required either 5 NM (9 km) distance by radar, or 1,000 ft vertically.

⁸ A position referenced to the points of a clock face relative to the heading of the aircraft.

Figure 5: Proximity of the aircraft at 1500:51



At 1500:53 the controller issued a traffic alert to the pilot of the occurrence 737 advising that the G-IV was in the 737's one o'clock position at 4 NM (7.4 km), passing through FL370. The pilot of the 737 responded that the traffic was sighted and that a traffic alert and collision avoidance system (TCAS)⁹ traffic advisory alert (TA)¹⁰ had been received. This was reported to have assisted the pilot to visually sight the descending G-IV.

The vertical separation standard of 1,000 ft was re-established at 1501:02. Radar separation was also increasing as a result of the G-IV's left turn onto 270°.

At 1501:34 the controller advised the pilot of the G-IV that his aircraft was clear of the occurrence 737 and instructed the pilot to track direct to IFR waypoint ROONY. The controller handed over to a relieving controller and the controller's ATS privilege was removed¹¹ at 1506:48.

Personnel information

History

The controller attended an Airservices Australia (Airservices) internal ATC conversion course

- 10 A TA provides pilots with information about other appropriately-equipped traffic within +/- 1,200 ft and 45 seconds in time from their aircraft. When a TA is issued, pilots are instructed to initiate a visual search for the traffic causing the TA.
- 11 Removal of the controller from operational duties until assessed as competent to return to an operational control position.

during 1994 and commenced operational ATC training on completion. The controller received an initial ATC endorsement in April 1995 and had remained with the same ATC group for the last 16 years. At the time of the occurrence, the controller was fully endorsed in all sectors within the ATC group and had held or held senior operational positions including group training specialist and work place assessor.

The controller's training records were unremarkable in relation to any recorded training or operational concerns.

The ATSB determined that no specific training or control issues existed with the controller at the time of this incident.

Recency and currency

The controller held a current Class 3 medical certificate and had recently conducted ATC renewal assessments for all endorsements held. All of these endorsements were valid at the time of the incident.

The controller completed compromised separation recovery refresher training in December 2010, 11 months before the occurrence.

Non-operation workplace event

The controller was involved in a non-operational workplace event 19 days prior to the occurrence. The controller attended work the following day, in a non-operational capacity, to ensure that the event was responded to and corrected by management. The controller then took a day's sick leave before returning to work. The workplace event was reported by the controller to be a period of stress and anxiety.

Roster

Controller rostering was managed in accordance with the Airservices fatigue risk management system. At the time of the occurrence, the controller was on an additional duty (overtime) shift that commenced 30 minutes prior to the BOS. The additional duty shift followed a day off after a normal roster cycle. Notification for the overtime shift occurred about 19 hours prior to the occurrence shift. The controller reported being rested prior to the commencement of his shift.

Workload

The controller reported that the air traffic workload and complexity at the time of the BOS was normal.

⁹ TCAS is an aircraft collision avoidance system. It monitors the airspace around an aircraft for other aircraft equipped with a corresponding active transponder and gives warning of possible collision risks.

Aircraft information

Traffic alert and collision avoidance system

In order to independently alert flight crews to possible conflicting traffic, TCAS identifies a three-dimensional airspace around appropriately equipped aircraft based on the closure rate of other similarly-equipped traffic. If the defined vertical and horizontal parameters are satisfied by an evolving potential conflict, TCAS generates a visual and aural alert.

The G-IV pilot advised receiving a TCAS TA on the occurrence 737 and, in accordance with company procedures, carried out a visual scan. The 737 was subsequently sighted ahead and above their aircraft.

Meteorological information

The weather conditions at the time were unremarkable. Moderate. occasional turbulence within a 4,000 ft altitude block was reported by one aircraft between FL350 and FL310.

Air traffic control information

Separation assurance

Separation assurance is described in the Manual of Air Traffic Services¹² (MATS) as follows:¹³

Separation assurance places greater emphasis on traffic planning and conflict avoidance rather than conflict resolution and requires that controllers:

- be proactive in applying separation to avoid rather than resolve conflicts
- plan traffic to guarantee rather b. than achieve separation
- execute the plan so C. as to guarantee separation; and
- d. monitor the situation to ensure that plan and execution are effective.

In this instance, separation assurance did not exist from the time descent to FL310 was issued by the controller and acknowledged by the pilot of the G-IV.

Controller separation planning

descend the G-IV to FL390 (1.000 ft above the 737), until both aircraft had passed each other. The controller intended then issuing further descent to the G-IV (Figure 6).

The controller reported intending to initially

Figure 6: Controller's intended separation plan



Level assignment

While the controller's separation plan was to initially limit the G-IV's descent to FL390, the controller verbally assigned FL310. This level assignment contradicted the controller's plan and authorised the G-IV to descend through the occurrence 737's level (Figure 7).

Figure 7: Level assignment and resulting descent as issued



Read-back/hearback

Aeronautical Information Publication The Australia¹⁴ (AIP) specified that pilots must read back ATC clearances. instructions and

13 MATS 10-10-300.

¹² The Manual of Air Traffic Services (MATS) details the procedures governing the air traffic control management in Australia that is provided by the Royal Australian Air Force and Airservices Australia.

¹⁴ A set of documents published by the Aeronautical Information Service (AIS), Airservices Australia. The documents contain information essential to air navigation including regulations, procedures and other information pertinent to flying aircraft in Australia.

information. This requirement includes any level instructions issued by ATC.¹⁵

A controller will listen to the pilot's read-back¹⁶ to ascertain that the clearance or instruction has been correctly acknowledged, taking immediate action to correct any discrepancies revealed by the read-back. Collectively this process is known as read-back/hearback, which effectively closes the ATC communication loop.

The MATS further requires controllers to obtain a read-back in sufficient detail that clearly indicates a pilot's understanding of, and compliance with, all ATC clearances, instructions and information.¹⁷

In this incident the pilot of the G-IV was required to, and correctly did, read back FL310 as the level assigned by the controller. The controller did not detect that the pilot's read-back was inconsistent with the descent level inputted into the cleared flight level (CFL).

The controller reported that on occasions he had a tendency to process a read-back as being correct prior to the critical read-back information being received. This was done by pre-empting the information as being correct prior to actually hearing the completed read-back.

A later playback of the occurrence audio to the controller provided for the controller's first realisation that an incorrect level had been assigned to the G-IV.

Assigned level input

In conjunction with verbally issuing a level clearance, controllers are required to transfer that level to the specific aircraft's TAAATS electronic flight strip. As a controller assigns a level to an aircraft, the CFL allocation box located on the air situation display (ASD) allows the controller to highlight the assigned level. The level highlight is deselected when a correct read-back is received by the controller from the affected flight crew.

As an example, if a controller verbally issues a clearance to a pilot to climb to FL200, the controller inputs FL200 on the CFL drop down box located on the ASD. When the pilot correctly reads back FL200, the controller acknowledges the

17 MATS 9-15-410.

read-back and level assignment of the CFL by deselecting the highlight. As a result, the flight data block and the associated electronic flight strip on the ASD correctly reflect the cleared level on climb as FL200.

In this incident the controller verbally issued descent to FL310 but deselected the highlighted FL390 (the intended and correct level) on the ASD (Figure 8).

Figure 8: G-IV flight data block at 1458:23



System alerts and warnings

A CLAM alert is generated based on information entered into TAAATS and is triggered when the system parameters are exceeded. This generates a CLAM when an aircraft maintains or passes through +/- 200 ft of a cleared level.

In this incident, as the controller had entered FL390 into TAAATS, a CLAM alert activated as the G-IV passed FL388 on descent to FL310.

Airservices National ATS Procedures Manual (NAPM) states that:¹⁸

A CLAM is a high priority alert and on receipt of the alert a controller must assess the integrity of the alert and shall ensure that separation is maintained if the alert is valid.

As soon as the CLAM alert activated the controller confirmed the assigned level with the pilot of the G-IV and commenced separation recovery action.

Compromised separation recovery

Separation is said to be compromised when separation standards have been infringed, or

¹⁵ AIP General (GEN) 3.4.4 Radiotelephony Procedures, paragraph 4.4.

¹⁶ Procedure whereby the receiving station repeats all or part of the message to the originator to verify accuracy.

¹⁸ NAPM Part 14 – Systems, warning and Alerts Processing, 14-25-3 and 14-25-29.

where separation assurance no longer exists to the extent that a breakdown of separation is imminent. The MATS required that, when ATC is aware that an aircraft is in unsafe proximity to other aircraft, a safety alert is to be issued.¹⁹ In that case, the following phraseology was to be used by ATC:

(Callsign) TRAFFIC ALERT (position of traffic if time permits), TURN LEFT/RIGHT (specify heading, if appropriate), and/or CLIMB/DESCEND (specific altitude if appropriate), IMMEDIATELY

The AIP did not refer to the term 'safety alert' or 'traffic alert', instead referring to a situation where an aircraft was in unsafe proximity to other aircraft and required 'avoiding action'. In the AIP example, ATC intervention included transmitting the following phraseology to the affected aircraft:²⁰

TURN LEFT (or RIGHT) IMMEDIATELY [(number) DEGREES] or [HEADING (three digits)] TO AVOID [UNIDENTIFIED] TRAFFIC (bearing by clock-reference and distance)

The controller reported that the MATS 'Traffic Alert' phraseology was taught during his compromised separation recovery refresher training. In contrast, previously learnt phraseology that was based on the requirements of the AIP was initially transmitted to the pilot of the G-IV.

Additional information

Human error

Within the human factors discipline, there have been many models to describe human error. In describing error, James Reason stated that:²¹

Mistakes are errors in choosing an objective or specifying a method of achieving it. Slips (noncognitive errors), are errors in carrying out an intended method for reaching an objective.

In simple terms, if the intended outcome is not appropriate, the error is classified as a mistake. If the action is not what was intended, the error is classified as a slip.

The ATSB investigation into the tailstrike and runway overrun that occurred at Melbourne Airport, Victoria on 20 March 2009 examined a

21 Human Error, J. Reason, Cambridge University Press, 1990

number of human errors in the development of that $\operatorname{accident.}^{22}$

The investigation found that slips generally relate to the conduct of skills-based activities. These activities suggest an action that has become so rehearsed and automatic that the individual does not closely monitor each stage in a sequence of actions as they would if the task was less familiar or unknown. This reduced monitoring can result in the individual not realising that they have carried out an incorrect action until it is too late to change, or an unforseen consequence has resulted.

Expectation bias

Expectation bias is the belief that you know in advance what you will see or hear, which affects what you actually think you see or hear.

Expectation bias in ATC means that there is a strong belief or mindset that a particular outcome will happen, or there is a particular cause for a situation, even when there is evidence to the contrary. Expectation bias is reinforced by previous experience of situations that have features in common with the current situation.

Expectancy can influence an individual's ability to detect error, such as detecting an incorrect clearance during a read-back. This can occur, in part, due to an individual's experience in a certain environment or role, which allows them to develop expectations about future events.

This expectation predisposes an individual to perceive information according to what they are expecting to hear, rather than what is actually said. That is, they are more likely to hear what they expect to hear, and less likely to notice that the actual transmission does not match the expected reply.

ANALYSIS

Introduction

There was no evidence that the pilots of the affected aircraft or their aircraft systems and equipment were a factor in this occurrence. More so, the occurrence involved a series of factors related to human performance limitations that impacted on the controller's performance.

¹⁹ MATS 9-10-600.

²⁰ AIP GEN 5 Phraseologies, section 5.13.3.

²² See investigation report A0-2009-012 at www.atsb.gov.au

In the event, there was a loss of separation The controller's reported occasional processing of assurance (LOSA) for a period of about 1 minute and 55 seconds prior to the activation of a cleared level adherence monitoring (CLAM) alert. Subsequently, the controller acted correctly to recover from the ensuing breakdown of separation (BOS).

This analysis will establish and explain the factors in the development of the occurrence.

Level assignment of FL310

The assignment of flight level (FL) 310 to the G-IV's descent was unintended and contradicted the controller's mental model for separation. That model intended both aircraft to pass in the opposite direction while maintaining the required vertical separation before allowing the pilot of the G-IV to descend from the intended descent restriction of FL390.

Prior to the occurrence a transmission was received by the controller from a pilot of another aircraft advising of occasional, moderate turbulence in the airspace ceasing at FL310. The controller subsequently provided this information, including the level, to an additional aircraft 31 seconds prior to issuing the G-IV's descent.

It is probable that the controller's recent reference to FL310 reinforced the relevance of FL310 in the controller's management of G-IV's separation with the occurrence 737. This culminated in a 'slip'. in which the controller issued a clearance for the pilot of the G-IV to descend to FL310, instead of to the intended FL390.

At the time the controller assigned descent to the G-IV, air traffic workload and complexity was reported as normal. This meant that the controller's actions leading up to the event were well rehearsed and generally automatic. As a result, there was a risk that the controller may not monitor standard tasks as closely as if they were less familiar or the tasks were previously unknown.

Non-identification of the incorrect level assignment

The success of the read-back/hearback procedure relies on effective listening practices by pilots and controllers. Given the nature and volume of communications in the aviation and environment, controllers pilots adopt communication filtering techniques. That involves listening to what needs to be listened to while conducting concurrent activities.

a read-back as being correct prior to receiving the information within the critical read-back. increased the risk of his perceiving the pilot's read-back as expected, rather than its actual content. The consistency of the controller's mental model of the G-IV descending not below FL390 with the controller's air situation display increased the likelihood this would occur, and explained the controller not detecting the G-IV pilot's actual read-back.

The absence of an acknowledgement or correction from the controller following the G-IV pilot's read-back was understandably assumed by the pilot as confirmation of clearance to descend to FL310.

Inconsistent compromised separation recovery phraseology

The controller's compromised separation recovery training 11 months previously relied on the application of phraseology that was stipulated in the Manual of Air Traffic Services (MATS). Prior to that training the controller had relied on and applied the phraseology 'avoiding action' contained in the Aeronautical Information Publication (AIP). This phraseology differed from that in the MATS.

The controller had not needed to apply his compromised separation recovery training in the period since that training. This increased the risk that he might revert to previously learned recovery techniques and phraseology should he experience situation where compromised separation а recovery action was required.

In the event, when alerted to the evolving breakdown by the CLAM alarm, the controller correctly initiated compromised separation recovery actions but combined the MATS/AIP phraseology. This resulted in non-standard advice being relayed to the pilot of the G-IV.

Whereas the controller quickly realised the error and attempted to use the correct phraseology, consistency of phraseology between the MATS and AIP would reduce the risk of controllers issuing non-standard advice to pilots. Similarly, pilots would not be subjected to phraseology that differed to that in AIP.

The action by the controller to issue the pilot of the G-IV with a left turn onto a heading of 270° and re-issue the descent clearance to FL310, arrested the decreasing separation

between the affected aircraft. Vertical separation was established 37 seconds later.

Rostering and prior non-operational issue Other key findings

The controller's prior 2-week operational roster. • including rest periods, was within the Airservices Australia fatigue management guidelines. The 19-day period between the non-operational workplace event and the BOS, which included periods of leave, time off and non-operational duties, minimised the potential for the workplace event to have contributed to the BOS.

FINDINGS

From the evidence available, the following findings are made with respect to the breakdown of separation between Boeing Company 737-8FE aircraft, registered VH-YVA, and Gulfstream Aerospace Corporation Gulfstream IV (G-IV), registered VH-CGF that occurred 32 NM (59 km) north-east of Armidale, New South Wales (NSW) on 8 October 2011. They should not be read as apportioning blame or liability to any particular organisation or individual.

Contributing safety factors

- The controller issued a clearance for the G-IV pilot to descend to flight level (FL) 310 instead of the intended FL390, which was possibly influenced by the controller's previous attention on FL310 in respect to the reported turbulence.
- The consistency of the controller's mental model of the G-IV not descending below flight level (FL) 390, combined with the expected pilot's read-back of FL390 and the subsequent representation of FL390 in the controller's air situation display, precluded the controller's comprehension that an incorrect level had been assigned to the G-IV.

Other safety factors

- Differences in traffic alert phraseology between the Manual of Air Traffic Services and the Aeronautical Information Publication increased the risk of non-standard advice being provided by the controller to the pilot of the G-IV during the compromised separation recovery. [Minor safety issue]
- The lack of a need for the controller to apply compromised separation recovery actions in that: the 11-month period following training, increased the risk of the use of previously learned recovery techniques and phraseology,

resulting in the provision of non-standard advice to the pilot of the G-IV.

The activation of the cleared level adherence monitoring alarm alerted the controller that separation had been compromised and resulted in timely action by the controller to rectify the breakdown of separation.

SAFETY ACTION

identified during The safety issues this investigation were communicated to the relevant organisations during the investigation. In addition, these organisations were given a draft report and asked to communicate what safety actions, if any they had carried out or were planning to carry out in relation to each safety issue.

For a critical or significant safety issue, the Australian Transport Safety Bureau (ATSB) expects the relevant organisation(s) to take safety action to address the issue. If appropriate safety action is not taken, the ATSB may issue a formal safety recommendation or a safety advisory notice.

For a minor safety issue, the ATSB notes that the associated risk is considered broadly acceptable. ATSB still encourages the relevant The organisation(s) to take safety action, but it does not issue a formal recommendation or a safety advisory notice.

When the ATSB has been advised of safety action in response to a safety issue, it is published in the final report.

Airservices Australia

Inconsistent compromised separation recovery phraseology

Minor safety issue

Differences in traffic alert phraseology between Manual of Air Traffic Services the and Aeronautical Information Publication increased the risk of non-standard advice being provided by the controller to the pilot of the G-IV during the compromised separation recovery.

Action taken by Airservices Australia

On 15 June 2012, Airservices Australia advised

To address the safety issue identified by the ATSB, Airservices conducted a review of relevant international and International Civil Aviation Organisation (ICAO) documentation. On the basis of this review, Airservices initiated a change to the phraseology that reflects the safety critical nature of the information being provided to flight crew. The changes to the Aeronautical Information Publication (AIP) and Manual of Air Traffic Services (MATS) will be implemented 28 June 2012.

AIP GEN 3.3 – 18, which became effective on • 28 June 2012, contained the following changes on safety alerts and avoiding actions:

SAFETY ALERTS AND AVOIDING ACTION

Introduction

ATC will issue a Safety Alert to aircraft when they become aware that an aircraft is in a situation that is considered to place it in unsafe proximity to terrain, obstructions or active restricted areas and other nonsurveillance aircraft.

In surveillance coverage ATC will issue avoiding action advice to an aircraft as a priority, when they become aware that an aircraft is in a situation that is considered to place it at risk of a collision with another aircraft.

ATC will not issue a Safety Alert or avoiding action advice when the pilot has already advised action is being taken to resolve the situation or has reported the other aircraft in sight.

ATC will prefix advice to turn or change level with "suggest" unless the alerts are for controlled flights.

SOURCES AND SUBMISSIONS

Sources of Information

The sources of information during the investigation included the:

- air traffic controller (ATC)
- captain of the G-IV
- aircraft operators
- Airservices Australia (Airservices).

References

- Flight operations briefing note Human performance, effective pilot/controller communications Airbus (2004)
- Handbook of aviation human factors Garland, Wise and Hopkin (1999)
- Human Error Reason (1990)

Submissions

Under Part 4, Division 2 (Investigation Reports), Section 26 of the *Transport Safety Investigation Act 2003* (the Act), the Australian Transport Safety Bureau 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 ATC, Airservices, the Civil Aviation Safety Authority, the operators of the two aircraft and the captain of the G-IV.

A submission was received from Airservices and, where considered appropriate, the report was amended accordingly.