



Australian Government
Civil Aviation Safety Authority

OFFICE OF THE DIRECTOR OF AVIATION SAFETY

Trim Ref: EF11/436

22 March 2011

Ms Julia Morris
Committee Secretary
House of Representatives Standing Committee
on Infrastructure and Communications
PO Box 6021
Parliament House
CANBERRA ACT 2600

Dear Ms Morris

Inquiry into ratio of cabin crew members on aircraft

Please find attached the submission by the Civil Aviation Safety Authority into the Inquiry into ratio of cabin crew members on aircraft by the House of Representatives Standing Committee on Infrastructure and Communications.

Yours sincerely



John F. McCormick
Director of Aviation Safety

**Civil Aviation Safety Authority Submission to the
House of Representatives Standing Committee
on Infrastructure and Communications.**

Inquiry into Ratios of Cabin Crew Members on Aircraft

Introduction

**The Civil Aviation Safety Authority and its role in the regulation of
Australian aviation safety.**

1. The Civil Aviation Safety Authority (CASA) was established as a statutory Authority under the *Civil Aviation Act 1988* (the Act) on 6 July 1995.¹

2. The main object of the Act is to '*establish a regulatory framework for maintaining, enhancing and promoting the safety of civil aviation, with particular emphasis on preventing aviation accidents and incidents*'.²

3. As specified in subsection 9(1) of the Act, CASA's core function is to conduct the safety regulation of civil air operations in Australian territory and the operation of Australian aircraft outside Australian territory by, amongst other things:

- developing and promulgating appropriate, clear and concise aviation safety standards;
- developing effective enforcement strategies to secure compliance with aviation safety standards;
- issuing certificates, licences, registrations and permits;
- conducting comprehensive aviation industry surveillance, including assessment of safety-related decisions taken by industry management at all levels for their impact on aviation safety;
- conducting regular reviews of the systems of civil aviation safety in order to monitor the safety performance of the aviation industry, to identify safety-related trends and risk factors and to promote the development and improvement of the system; and
- conducting regular and timely assessments of international safety developments.

4. CASA also has the following safety-related functions:

- encouraging a greater acceptance by the aviation industry of its obligation to maintain high standards of aviation safety; and
- promoting full and effective consultation and communication with all interested parties on aviation safety issues.³

¹ Section 8.

² Section 3A.

5. In exercising its powers and performing its functions under the Act, CASA must regard the safety of air navigation as the most important consideration.⁴

6. The Commonwealth implements its obligations under the Act by and through the making of the Civil Aviation Regulations 1988 (CARs) and the Civil Aviation Safety Regulations 1998 (CASRs). CASA also makes the Civil Aviation Orders (CAOs) and Manuals of Standards.⁵

7. CASA publishes a wide range of guidance and advisory materials, including Civil Aviation Advisory Publications and Advisory Circulars, to better enable members of the aviation industry to understand and fulfill their safety-related obligations under the legislation. CASA also produces safety promotion materials and conducts safety education seminars throughout Australia.

8. Consistent with its consultation functions under subsection 9(2) of the Act, and where it is otherwise appropriate to do so, CASA is expressly required to consult with government, commercial, industrial, consumer and other relevant bodies and organisations, including the International Civil Aviation Organization (ICAO) and bodies representing the aviation industry in the performance of its functions and the exercise of its powers.⁶

9. CASA is required to perform its functions in a manner consistent with Australia's obligations as a signatory to the Convention on International Civil Aviation (Chicago Convention) and any other agreement between Australia and any other country or countries relating to the safety of air navigation.⁷

10. Australia is a founding and highly respected member of ICAO, and has been re-elected consistently to serve on the ICAO Council (currently made up of 36 member States) since ICAO was established in 1947. CASA officers actively participate in a wide range of specialist ICAO technical panels and working groups which contribute to the development of international aviation standards and recommended practices.

³ Civil Aviation Act, subs. 9(2).

⁴ Civil Aviation Act, subs. 9(2).

⁵ As part of the regulatory reform process, the CARs are being progressively replaced by the CASRs. More detailed technical requirements under the CARs (and in some cases, under certain provisions of the Act) appear in the CAOs. Where such detailed requirements are required under the CASRs these will appear in corresponding Manuals of Standards.

⁶ Civil Aviation Act, s. 16.

⁷ Civil Aviation Act, s. 11.

Terms of Reference

(a) The current aviation safety regulatory system for aircraft operators in relation to the application of the cabin crew to passenger ratio including current exemption provisions.

11. There are a number of levels in the regulatory framework which relate to cabin crew ratios, including:

- ICAO Standards and Recommended Practices (SARPs), which, in this context, are contained in Annex 6 to the Convention on Civil Aviation;
- the aircraft type certificate issued by the State of Design and related manufacturer recommendations accepted by CASA under the CASRs;
- Australian legislative requirements which implement the above in the form of the *Civil Aviation Act (1988)* and Civil Aviation Regulations (1988). Civil Aviation Orders (CAO) set out CASA's directions and instructions in matters of complex detail. They typically contain technical detail and requirements that complement the requirements set out in the relevant regulations.

12. Cabin crew employed in Australian regular public transport (RPT) and charter operations are a critical element in the conduct of safe and efficient passenger transport. Their role in operations is defined by international standards and mandated by Australian aviation law.⁸ These crew members are assigned duties to be performed during non normal or emergency situations as required by Australian CAOs. This includes situations requiring an aircraft evacuation, where cabin crew may be called upon to initiate and direct the aircraft evacuation process at usable exits, direct passengers away from unusable exits, and provide passenger management within the cabin, undertaken with the safety of all aircraft occupants as a foremost consideration.

13. ICAO requires contracting States to make provision for a sufficient number of cabin crew on board an aircraft to effect a safe evacuation of the aeroplane and to perform necessary functions in emergency situations. Annex 6 of the Convention on Civil Aviation provides SARPs for an operator to establish, to the satisfaction of the State of the Operator, the minimum number of cabin crew required for each type of aeroplane, based on seating capacity or the number of passengers carried, in order to effect a safe and expeditious evacuation of the aeroplane, and the necessary functions to be performed in an emergency or a situation requiring emergency evacuation. The operator shall assign these functions for each type of aeroplane.

14. The Australian legislative framework which implement ICAO requirements relating to cabin crew are regulation 253 of the Civil Aviation Regulations 1988

⁸ Civil Aviation Regulation (1988) 253 (Emergency and life-saving equipment), Civil Aviation Order 20.16.3 (Carriage of Persons); CAO 20.11 (Emergency and Lifesaving equipment and Requirements for Passenger Control in Emergencies).

(Emergency and life-saving equipment), CAO 20.16.3 (Carriage of Persons) and CAO 20.11 (Emergency and Lifesaving equipment and Requirements for Passenger Control in Emergencies).

15. Since the early 1990s, Australia's air transport operators have been turning to international practice to continuously improve cabin safety standards. Australian operators are regular attendees at international and local symposia for cabin safety. A study of "lessons learnt" in major US aircraft accidents by the US National Transportation Safety Board (NTSB) and resulting recommendations to the FAA have largely been adopted in Australia by regulation or by voluntary conformance.⁹

16. Since 2007, a number of Australian regular public transport (RPT) operators have satisfied CASA that an acceptable level of safety can be maintained as a result of implementing a minimum cabin crew number aligned with the manufacturer's recommended cabin crew number and contemporary international industry practice. These operators were issued a regulatory direction under regulation 208 of the Civil Aviation Regulations 1988. (CAR 208 – Number of operating crew).

17. A CAR 208 Direction is a regulatory direction (by legislative instrument) which CASA may issue to an air operator authorising operations using a cabin crew member ratio to passenger seat ratio of 1:50. The regulation authorises the minimum operating cabin crew of the aircraft which is not less in number than that specified in the manufacturer's flight manual for an aircraft, supplemented by such additional operating crew members, having such qualifications as CASA considers necessary and directs and with due regard to the safety of air navigation. Importantly, it is the aircraft manufacturer's certification approved by the State of Design and formally recognised by Australia that is a basis for allowing 1:50 operations.

18. The effect of a CAR 208 Direction (the permission) to operate at a cabin crew ratio of up to 1:50 may involve a reduction of the minimum cabin crew by one. The 1:50 figure refers to the ratio of cabin crew members to passenger seats installed on an aircraft (or part thereof) determined by the aircraft manufacturer to be the minimum required cabin crew number, accepted by the National Aviation Authority of the State of Design. Type acceptance of the aircraft type is effected by regulation 21.29A of the Civil Aviation Safety Regulations 1998.

19. Applications for the permission are assessed firstly on evidence of the aircraft manufacturer's type certification which specifies the maximum numbers of passengers that can be carried.

⁹ NTSB Safety Study. <http://ntsb.gov/publictn/2000/ss0001.htm>

20. Applicants are required to provide satisfactory operational procedures, including emergency procedures and supporting documentation for proposed 1:50 operations.

21. Applicants are further required to substantiate claims of capability to safely conduct operations using a cabin crew ratio of 1:50. The agreed method for initial applications was a review of applicable operational procedures against the operating requirements contained in the United States'(US) 14 Code of Federal Regulations (CFR), Federal Aviation Regulation 121 (FAR121). The reason that this regulatory basis was chosen was that operational capability claims had been made regarding conformity with current 1:50 cabin crew ratio operating requirements of the United States. In addition the Federal Aviation Administration (FAA) was the National Airworthiness Authority for Australia's type acceptance of the Boeing 737-800 series aircraft involved.

22. The documentation review involved assessment of the applicant's current and proposed operating procedures against the more detailed prescription of the US FAR 121 requirements. A gap analysis was produced which identified where an applicant's current and proposed procedures would need further development.

23. Exit seating procedures for passengers were not regulated in Australia up until 2007. Despite this, many RPT and charter operators had introduced their own versions of passenger briefings and exit row evacuation procedures. The US mandatory exit seating program requirements under FAR 121.585 provided a proven operational framework for Australian operators to follow. This resulted in a standardised approach to developing the exit row conditions that 1:50 cabin crew ratio permission holders are now regulated to. Details of the scope of assessment using the FAA guidance is contained in Appendix 1.

24. In late 2007, Airbus 320 (A320) operators applied for the permission. The methodology changed slightly when operators offered alternative operational comparisons involving European Aviation Safety Agency (EASA) requirements for 1:50 operations.¹⁰ This was accepted because operators had begun modelling procedures and training on the EASA framework in anticipation of the introduction of the proposed Australian CASR Part 121 (Passenger Transport Services and Cargo Operations - Larger Aeroplanes). The relevant operational requirements of the FAA and EASA are similar and were found to be compatible for assessing each operator's application.

25. Risk assessments are also provided which demonstrate the applicant's safety risk management processes that support the planning and implementation of 1:50 cabin crew operations.

¹⁰ EU-OPS 1, formerly known as JAR Ops 1.

26. Following acceptance of the proposed documentation, CASA then conducts inspections of ground support systems, cabin crew training and aircraft configuration.

27. For the proving phase of CAR 208, (1:50) applications, and under the provisions of CAO 20.11, subparagraphs 15.1.3 and 15.1.4,¹¹ CASA requires an operator to conduct a partial evacuation demonstration of the aircraft type concerned using trained crew members and a requisite number of passengers to effect a viable demonstration.¹² An aborted take off involving engine fire and evacuation has been the pre cursor scenario used in each demonstration. The US FAA's Inspectors' Handbook guidance was accepted by CASA for the purposes of this exercise.¹³

28. The purpose of the evacuation demonstration is for the operator's cabin crew and where procedures require, able-bodied passengers, to demonstrate to CASA the effectiveness of the system of initiating and managing an aircraft evacuation in simulated emergency conditions utilising half of the aircraft exits. CASA nominates floor level exits for crew member use and "self help" over wing exits for able bodied passengers' use. These are identified at the initiation of the simulated emergency.

29. Specific responsibilities of the operator are:

- to demonstrate the ability of cabin crew to assess and brief passengers seated in emergency exit rows to ensure the passengers operate the window exits and where necessary, support cabin crew in a manner appropriate to the simulated emergency situation; and
- to demonstrate the ability of cabin crews to recognise and react to a simulated emergency situation by operating appropriate emergency exits in conformance with timing requirements for a partial evacuation demonstration exercise.

30. The objective of the evacuation demonstration is to prove that there is no significant difference between the 1:36 operations and the proposed 1:50 operating environment with regard to evacuation capability. An acceptable level of safety (or better) must be achieved.

31. The demonstrations are conducted under formalised Pass/Fail criteria. In the event that the first exercise is unsuccessful, the operator may be given the

¹¹ The CAOs require that an operator must not operate a particular type and model of aircraft unless that operator has satisfied CASA that the evacuation procedures and training introduced by the operator will enable crew members to achieve an evacuation capability equivalent to that achieved when the aircraft met certification requirements.

¹² Aircraft manufacturers must perform a full evacuation demonstration (or approved analysis) as part of any new type and model certification in the State of Design. The results are available to aviation regulators for analysis. CASA does not therefore require a further full evacuation demonstration in most circumstances.

¹³ FAA Inspectors Handbook, Volume 3 Air Operator Technical Administration, Chapter 10, Emergency Evacuation and Ditching Demonstrations, Section 3 Aborted Takeoff Demonstration

opportunity to present a further evacuation demonstration on the day using a second crew and new passengers. Not all demonstrations have been successful at the first attempt.

32. One operator's evacuation demonstration was deemed unsuccessful at both attempts. An investigation was made into the circumstances leading to the unsatisfactory result. Operator procedures were amended and crew training was reviewed and delivered. A second evacuation demonstration was scheduled some months later. The performance criteria were met and the demonstration deemed successful.

33. Since October 2009, RPT operators have been required to use a Safety Management System approved by CASA.¹⁴

34. From 2010, CASA has required new applicants, and those seeking renewals of the permission to operate with a 1:50 cabin crew ratio, to submit a formal safety risk management plan (SRMP) produced in accordance with the operator's Safety Management System. This is to provide assurance to the operator and to CASA that proposed operations can be, or continue to be, conducted safely and in accordance with the requirements of section 28 of the Act.

35. An operator's SRMP has since become the basis of the application to CASA for approval to operate with a revised minimum cabin crew complement.

36. An SRMP must include evidence that the operator's system safety performance meets and continues to meet relevant operational safety standards of leading aviation regulators such as EASA and the FAA.

37. CASA is satisfied that a robust SRMP and associated safety risk management processes can effectively support operations in a 1:50 environment.

38. As part of any 1:50 permission application, an operator must also detail what internal oversight will be conducted in the post-implementation phase to determine any inadvertent detriment to operational safety. Operators are aware that CASA oversees the effectiveness of change processes and monitoring of implementation during its industry surveillance activity.

39. Successful applicants for permissions under CAR 208 have, in effect, satisfied CASA that they have adopted international practice of some ICAO States that regulate the industry standard of 1 cabin crew member to 50 passenger seats ratio.

¹⁴ CAO Sections 82.3 (2A) and 82.5 (2A).

40. As of 17 March 2010, CASA has authorised thirteen Australian airlines to operate at up to a 1:50 cabin crew ratio. CASA conducts regular surveillance on these and other operators using system audits, operational surveillance visits and spot checks.

(b) The role of cabin crew in managing both passenger safety and security;

41. ICAO requires that contracting States apply SARPs for security in so far as it applies to prevention of illicit acts against civil aviation.

42. In 2003, security for the flight crew compartment on large aircraft was upgraded with the introduction of strengthened flight crew compartment doors to resist forcible intrusions by unauthorised persons. These doors are capable of being locked and unlocked from either pilot's station, with means by which cabin crew can discreetly notify the flight crew in the event of suspicious activity or security breaches in the cabin.

43. The cabin crew role is seen as a vital link in the safety and security assurance chain by maintaining and applying the operator's operational procedures and where required, by calling on law enforcement agencies. In rare cases noted in Australia and overseas, passenger assistance was used to provide the support for when a passenger has needed to be subdued.

44. In relation to the CAR 208 permissions authorising 1:50 cabin crew ratios, the Office of Transport Security (OTS) has not expressed concerns on security matters.

(c) The factors that determine the cabin crew to passenger ratio;

45. The current CAOs require that there be one cabin attendant for every 36 passengers (1:36) or portion thereof on board and for aircraft with not more than 216 seats. For aircraft of 216 seats or more, or which have twin aisles, the minimum cannot be less than the number of floor level exits.

46. The Australian requirement for a 1:36 cabin crew to passenger seat ratio has been in existence for over 50 years. This ratio was developed from a cabin seating configuration most probably based on the original Fokker Friendship seating configurations. As new aircraft types were introduced at the dawn of the jet age, cabin crew numbers were determined by simple division and rounding up of the number of passengers carried, to arrive at the required cabin crew assignment.

47. A key factor in determining the cabin crew to passenger ratio is the practice of leading international aviation safety agencies.

48. The US FARs require that there be one flight attendant for every 50 passenger seats (1:50) or portion thereof installed in the aircraft.¹⁵

49. The EASA requirements for member States require that there be one cabin crew member for every 50, or fraction of, passenger seats (1:50) installed on the same deck of the aeroplane.¹⁶

50. The New Zealand Civil Aviation Rules require the assignment of cabin crew as specified by the manufacturer's recommended emergency evacuation procedures for the aeroplane configuration being used, and specified by the certified design criteria for the aeroplane. The resulting requirement for cabin crew assignment is 1 cabin crew member for 50 passenger seats installed for single aisle aircraft operations.¹⁷

51. Canada has introduced a Notice of Proposed Amendment (NPA) introducing operating rules to permit a cabin crew member ratio of one flight attendant for every 50 configured passenger seats in addition to the existing ratio of one flight attendant for every 40 passengers on board an aircraft.¹⁸ Currently the requirement is for 1 flight attendant for every 40 passengers onboard. There is provision in the Canadian Aviation Regulations for a reduction of 1 cabin crew member provided the aircraft type is certified to an airworthiness standard similar to FAR 25 Amendment 25-51 and conforms to the Canadian Commercial Air Service Standards.¹⁹

52. The main difference, apart from cabin crew numbers with the various regulatory authorities, is that the Canadian and Australian requirements are based upon the number of passengers actually on board whereas all other ICAO States are based upon the number of seats installed in the aircraft, whether occupied or not.

53. Australia and Canada are the only ICAO States that do not routinely employ the internationally used 1:50 standard for assignment of cabin crew. Both States however employ safety and regulatory processes to authorise 1:50 operations under similar criteria.

54. Significant enhancements in cabin safety systems were incorporated by the FAR 25 Amendment 25-51 including:

- heat resistant evacuation slides;
- Halon 1211 fire extinguishers;
- lavatory smoke detectors;

¹⁵ CFR 14. Federal Aviation Regulation 121.391. Flight attendants

¹⁶ EU-OPS 1.990. Number and Composition of Cabin Crew.

¹⁷ NZ CAR 121.519 Flight attendants duty assignment.

¹⁸ Transport Canada NPA 2004-027 Passenger and Cabin Safety Procedures

¹⁹ Canadian Aviation Regulations (CAR) Part V - Airworthiness Manual Chapter 525 - Transport Category Aeroplanes

- floor proximity (escape path) lighting;
- waste receptacle extinguishers;
- seat fire blocking layers;
- crew member protective breathing equipment (PBE);
- identification of passenger exits;
- exit row seating capability;
- PA system upgrades;
- cargo compartment protection;
- cabin heat/smoke release panels; and
- crew resource management training.

55. All CASA permissions issued for cabin crew operations in the 1:50 environment have involved aircraft that meet this airworthiness standard.

56. A key consideration in an operator's capability to operate under a 1:50 CAR 208 permission is the passenger capability enhancements that have proven to add a significant level of safety both in overseas situations and during operator's evacuation demonstrations in Australia.

57. Formalising of passenger capability to operate self help exits was introduced following contemporary research from the UK and by the Australian Transport Safety Bureau (ATSB) in Australia.

58. Passenger exit operation is a recommendation of the aircraft manufacturer, supported by the ICAO State of Manufacture. The use of able bodied passengers for assisting cabin crew in emergency situations is recommended by ICAO and supported by international aviation safety regulators such as EASA and the US FAA. In 2006, the Australian Transport Safety Bureau (ATSB) published a report following contemporary research involving Cranfield University in the UK into the management of passengers in emergency situations. Results of this research and previous safety studies referenced were said to provide useful input to cabin crew training, to the design of best practice evacuation procedures and commands together with assisting in designing safety information which is more closely aligned with passenger expectations.²⁰

59. In 2001, the FAA's Civil Aeromedical Institute (CAMI) published a report concerning the specification and use of self help exits by able bodied and appropriately briefed passengers.²¹ Part of the report concluded that:

- subjects can and will comply with hatch removal and disposal instructions when they understand what is expected;

²⁰ ATSB Research and Analysis Report 2006. Evacuation Commands for Optimal Passenger Management. http://www.atsb.gov.au/media/32733/grant_20040239.pdf .

²¹ FAA, Civil Aeromedical Institute, Access-to-Egress: A Meta-Analysis Of the Factors That Control Emergency Evacuation Through The Transport Airplane Type-III Overwing Exit

- positive review of briefing cards by hatch operators allowed them to understand the intended method of hatch operation; and
- the results indicate that passengers can be more effective survivors if they are properly informed about emergency procedures.

60. Australian evacuation testing over the last 4 years has determined that there are significant safety benefits in requiring 2 able bodied and appropriately briefed passengers at each self help exit. This requirement is one operating condition for 1:50 CAR 208 Direction holders. Similar safety improvements in evacuation capability have been demonstrated for main floor level exits thereby supporting continuing exit capability in the event of cabin crew incapacitation.

61. During consideration of an application to operate in a 1:50 environment, an operator must also be able to demonstrate compliance and operational capability with all other applicable regulations and CAOs in relation to cabin safety and emergency evacuation. This includes the evacuation demonstration for CASA using the proposed number of cabin crew members for the actual aircraft type. All Australian air operators within the current 1:50 environment have completed a successful evacuation and where required, ditching demonstration.

62. Once issued, CAR (1988) 208 Directions (1:50 permissions) contain strict conditions that operators must comply with on a continuing basis.²² These conditions are:

- *Only physically competent (able bodied) persons may occupy seats in the over wing emergency exit rows.*
- *During aircraft takeoff, landing operation and in prepared emergencies, each over wing exit row must be occupied by a minimum of 2 able bodied persons.*
- *All passengers seated in the over wing emergency exit rows must have received and respond to a briefing which instructs them in the opening of over wing emergency exits and subsequent actions required in the event of an emergency.*
- *The operator must ensure that the aircraft can be evacuated in 90 seconds.*
- *Arrangements for the seating and briefing of passengers must be in accordance with procedures set out in the operator's operations manual and approved by CASA.*

²² These conditions form the basis of regulated passenger self help exit management ahead of Proposed CASR 121 (Passenger Transport Services and Cargo Operations - Larger Aeroplanes).

63. Operational and risk management procedures developed to support 1:50 operations are regularly monitored by CASA for conformance and continuous improvement through operational surveillance and the operator's approved safety management system.

(d) Domestic and international practice in respect of cabin crew to passenger ratios.

64. Modern single aisle passenger aircraft types including those of the Airbus 320 family and Boeing 737 family are designed and certified to operate safely with a cabin crew ratio of 1 cabin crew member to 50 passenger seats installed. The majority of the world's fleet of these and other single aisle passenger transport aircraft are operated under a maximum 1:50 cabin crew ratio, including those regulated by European Community States, United States of America and New Zealand.

65. Some foreign airlines in the Asia Pacific region, including those operating under New Zealand and Singapore Air Operator Certificates regularly operate into Australia with the same Airbus 320 or Boeing 737 aircraft and at a 1 to 50 cabin crew ratio because their national regulations allow that ratio.

66. Most long range international RPT capacity is provided using wide body (or twin aisle) aircraft. These aircraft types, operating under an Australian AOC require at least one cabin crew member per floor level exit. Whether on domestic or international operations, wide body Australian aircraft such as the Airbus 330, Airbus 380, Boeing 767 and Boeing 747 are not eligible for the CAR 208, 1:50 cabin crew permission.

67. Since initial 1:50 ratio discussions in 2005, CASA has conducted significant international and local research into the latest developments in passenger safety and evacuation performance. This included the aforementioned Cranfield University studies into passenger performance during evacuations and proactive measures to enhance passenger capability and survivability as well as the:

- ATSB study into cabin safety communications;²³
- EASA recommendations concerning management of emergency exit pairs and cabin crew situational awareness; and
- lessons learnt and applied as a result of the A320 ditching in the Hudson River at New York in 2009.²⁴ The results of the NTSB investigation reinforced the existing support for the:
 - even distribution of cabin crew through the aircraft;

²³ Public Attitudes, Perceptions and Behaviours Towards Cabin Safety Communications, Australian Transport Safety Bureau. July 2006.
<http://www.atsb.gov.au/publications/2006/b20040238.aspx>

²⁴ US Airways Flight 1549, A320-214, NTSB Survival Factors Group, Chairman's Report 22 May 2009. Docket No. SA-532. Exhibit 6-A.

- practical validation of exit bypass (redirection) methodology; and
- importance of delivering safety information effectively; and
- the capability of properly planned and executed emergency procedures based on a 1:50 cabin crew ratio in an unanticipated emergency situation.

(e) Measures to enhance aviation safety that may be considered in future requirements on aircraft operators for a safety risk management plan covering the cabin crew to passenger ratio.

68. In 2009, CASA raised a regulatory development project to consider amendment of CAO 20.16.3 (*Air Service Operations – Carriage of Persons*) to bring its provisions into line with international practice by allowing CASA to approve cabin crew ratios greater than 1:36, subject to an airline operator presenting a satisfactory safety case to CASA.

69. As part of the regulatory consultation process, CASA formed a Cabin Crew Ratio Project Team (CCRPT) of industry stakeholders most likely to be affected by changes to the current cabin crew standard including the Australian and International Airline Pilots Association (AIPA), the Flight Attendants Association of Australia (FAAA), Qantas Airways Limited, QantasLink Group, Virgin Blue Airlines Pty Ltd and National Jet Systems Pty Ltd. The project team included a CASA expert on the subject of cabin crew ratios. The team met on 10 June and 14 July 2009 to develop the proposed amendment and develop guidance for a draft Civil Aviation Advisory Publication (CAAP).

70. A Notice of Proposed Rule Making (NPRM) was published on the CASA website on 9 February 2010. The period for comments closed on 6 April 2010.

71. It is intended that the Summary of Responses (SOR), final rule and advisory material will be published in the Notice of Final Rule Making (NFRM) following the making of the CAO amendment.

72. Amendment of the CAO would remove the current need to issue, if appropriate, directions requested by individual operators for their particular operations.

73. The final rule and associated advisory material (which deals with the considerations to be made by an operator who applies for approval to operate at the 1:50 ratio) will take into account the comments received.

74. The amendment will be subject to parliamentary scrutiny in accordance with the normal legislative process.

75. Should the amendment to CAO 20.16.3 proceed, CASA will require existing CAR 208 permission holders to transition to the new requirement as their existing permissions expire. This will involve a revalidation of the air operator's safety risk management capability and performance using 1:50 operations.

76. ICAO is finalising the ICAO SARPs and Guidance Material for Fatigue Risk Management Systems (FRMS) and/or prescriptive limits for cabin crew. It is anticipated that this will result in the finalising of policy work for cabin crew FRMS during the second half of 2012. In the meantime CASA is satisfied that operators have the operational capability to manage fatigue risk under their Safety Management Systems, as much as any other identifiable operational risk.

77. Part of CASA's function under the Act is to conduct regular and timely assessments of international safety developments. CASA's cabin safety technical inspectorate continues to research and encourage operators to apply continuous improvement in light of international cabin safety developments.

78. Future measures may include:

- allowing current CAR 208 permission holders the opportunity to be pre-assessed for compliance in advance of the proposed CASR 121 transition process;
- adopting EASA-based guidance for cabin safety training in anticipation of aligned CASR 121 training requirements; and
- requirements for charter and RPT operators who do not carry cabin crew, to undertake cabin safety capability assessments, including evacuation demonstrations, as part of an AOC operations specification application.

Appendix 1 - Scope of FAA elements considered for CAR 208 permission applications.

The following cabin safety requirements aligned to US 14 CFR FAR 121 operating requirements were used to assist in the assessment of the first operators to apply for CAR 208 (1:50) permissions. Later, similar provisions aligned to EASA requirements under EU-OPs 1 were accepted as guidance.

The CASA assessments measured the degree to which applicant's proposed operational procedures aligned with either the FAA or EASA requirements. This allowed an objective direction to applicants depending on whether outcomes were satisfactory or not yet satisfactory, indicating that further development was required.

The FAA FAR 121 guidance included provisions are detailed below.

Ground Operations.

- Assigning seats prior to boarding consistent with the exit seating criteria.
- Determining the suitability of each person it permits to occupy an exit seat.
- Designating exit seats for each passenger seating configuration in its fleet.
- Informing the public with information in regard to exit row seating.
- Screening out passengers who use electronic media that allows passengers to select exit seats and print out a boarding pass without going through an employee of the company.
- Restrictions on a passenger occupying an exit seat if the operator determines that the person lacks sufficient mobility, strength, or dexterity in both arms and hands, and both legs to reach upward, sideways, and downward to the location of emergency exit and exit-slide operating mechanism.
- Restrictions on a passenger occupying an exit seat if the operator determines that the person lacks the ability to read and understand instructions related to emergency evacuation provided by the operator in printed or graphic form or the ability to understand oral crew commands.
- Restrictions on a passenger occupying an exit seat if the operator determines that the person has a condition or responsibilities, such as caring for small children that might prevent the person from performing one or more of the applicable functions.
- Restrictions on a passenger occupying an exit seat if that person is less than 15 years of age.
- Restrictions on a passenger occupying an exit seat if the operator determines that the person lacks the ability to adequately impart information orally to other passengers.

- Make available instructions and information that no person may assault, threaten, intimidate, or interfere with a crewmember in the performance of the crewmember's duties onboard an aircraft being operated.

Flight Operations.

- Pre flight crew and passenger safety briefings.
- Carry on baggage procedures, including screening, stowage, and provision for offload.
- Procedures for the carriage of an assistance (guide) dog and its handler including procedures in the event of an aircraft evacuation.
- Procedures for passengers with reduced mobility including procedures in the event of an aircraft evacuation.
- Information to passengers regarding the legal protection given to smoke detectors on the aircraft.
- Instructions and information to its personnel that operation of an aircraft with carry-on baggage, cargo or trash stored in uncertified receptacles such as lavatories is contrary to Regulations and contrary to the certification basis of the aircraft.
- Enhanced cockpit-to-cabin communication procedures.

Training and Checking.

- Providing adequately trained and currently proficient cabin crew members with respect to each aircraft, crew member position and type of operation.
- Initial, transition, recurrent and differences training, ground training, instruction, and practice as necessary to ensure that each cabin crewmember qualifies in new equipment, facilities, procedures, and techniques, including modifications to airplanes.
- Emergency training that includes instruction in coordination among crewmembers.
- Fire training including handling of a fire on the surface, in flight, in galleys, electrical systems and entertainment systems.
- Procedures for smoke removal (where available).
- Evacuation including evacuation in the event of a ditching onto water, including the evacuation of persons and their attendants, who need assistance to move expeditiously to an exit.
- Emergency training, which provides instruction on the handling of injury involving passengers and crewmembers including familiarization with the emergency medical kit.
- Emergency training, which provides instruction on the handling of unusual situations other than hijacking.
- Emergency training, which provides a review and discussion of previous aircraft accidents and incidents pertaining to actual emergency situations.

- Each cabin crewmember to accomplish on initial training, a one-time approved protective breathing equipment (PBE) and installed hand fire extinguisher or approved fire extinguisher drill, in which he or she combats an actual fire or simulated fire while using a hand fire extinguisher and PBE that are the type installed and requires the flight attendant to replicate the forces necessary to open the PBE pouch.
- Each cabin crewmember to accomplish in initial training, a one-time evacuation drill egressing the airplane or approved training device, using an installed emergency evacuation slide.
- The Operator's training program requires each crewmember (flight attendant) to accomplish a performance drill in which they operate each type of emergency exit in the emergency mode, including the actions and forces required in the deployment of the emergency evacuation slide during initial.
- The Operator's training program requires each crewmember (flight attendant) to accomplish a performance drill in which they operate each type of emergency oxygen system to include protective breathing equipment during initial training.
- requires each crewmember (flight attendant) to accomplish a performance ditching drill including but not limited to, as appropriate, cockpit preparation and procedures, crew coordination, passenger briefing, cabin preparation, donning and inflation of life preservers, use of life lines and boarding passengers and crew into raft or slide raft pack during initial training.
- The Operator's training program requires each crewmember (flight attendant) to accomplish a performance drill in which they don, use and inflate, if applicable, the individual flotation device, each 24 months, during recurrent training.
- The Operator's training program requires each crewmember (flight attendant) to accomplish a performance ditching drill including but not limited to, as appropriate, cockpit preparation and procedures, crew coordination, passenger briefing, cabin preparation, donning and inflation of life preservers, use of life lines and boarding passengers and crew into raft or slide raft pack each 24 months, during recurrent training.
- Instruction to flight attendants in emergency medical event procedures, including coordination among crewmembers.
- Operator's training program manual provides each flight attendant with instruction, to include performance drills, in the proper use of automated external defibrillators (when carried).
- The Operator's manual information regarding communication and coordination between flight crewmembers and flight attendants includes instruction in each crewmember's duties at every stage of the flight.