QUEENSLAND COURTS

CORONERS COURT OF QUEENSLAND

FINDINGS OF INQUEST

CITATION:	**Inquest into the deaths arising from the March 2014 plane crash at Caboolture Airfield**
TITLE OF COURT:	Coroners Court
JURISDICTION:	BRISBANE
FILE NO(s):	2014/1046
DELIVERED ON:	10 March 2020
DELIVERED AT:	Brisbane
HEARING DATE(s):	24-27 September 2018 and 17-18 December 2018. Written submissions 21 February 2019 to 6 September 2019
FINDINGS OF:	Terry Ryan, State Coroner
CATCHWORDS:	Coroners: inquest, aircraft accident, tandem parachuting, parachuting operations, regulatory oversight of commercial parachuting operations.

REPRESENTATION:

Counsel Assisting:	Mr Ian Harvey
Civil Aviation Safety Authority:	Mr Ron Ashton QC (instructed by CASA)
Australian Transport Safety Bureau:	Mr Patrick Hornby
Australian Parachute Federation Ltd:	Mr Andrew Preston (instructed by Lander & Rogers)
Textron Aviation Inc. - (successor to Cessna Aircraft Company):	Mr Greg O'Mahoney (instructed by Norton White)
Mr Paul Turner:	Mr Matthew Eade (instructed by Sparke Helmore)

Contents

Introduction

1. Late on the morning of Saturday, 22 March 2014, Cessna aircraft VH-FRT took off in an easterly direction from runway 06 at Caboolture Airfield, north of Brisbane. The weather was clear with scattered cloud and a light easterly wind.

2. The Cessna was used in commercial tandem parachuting operations conducted by Skydive Bribie Island, and it was the third flight of the morning. There were five people on board - the pilot (Andrew Aitken) two parachuting instructors (Glenn Norman and Juraj Glesk) and two tandem parachutists (Joseph King and Rahuia Hohua). Mr King and Ms Hohua had paid almost $600 to engage in a tandem parachute descent for a beach landing at Bribie Island.

3. After take-off, the Cessna climbed to about 200 feet with a nose up tail low attitude and commenced to bank to the left. The aircraft suddenly declined nose down and impacted with the ground in an almost vertical, left wing low attitude. The plane was destroyed by a fuel fed fire which began almost immediately upon impact, killing all those on board and destroying the aircraft.

4. These findings:

    - confirm the identity of the deceased, the time, place, and medical cause of their deaths, and consider:

        - how the crash occurred;

        - whether uncommanded seat slide in the Cessna contributed to the crash; and

        - whether any recommendations can be made that would reduce the likelihood of deaths occurring in skydiving operations in the future or otherwise contribute to public safety.

Coronial jurisdiction

5. An inquest is a fact finding exercise and not a process for allocating blame. The procedure and rules of evidence used in criminal and civil trials are not adopted. “In an inquest there are no parties, there is no indictment, there is no prosecution, there is no defence, there is no trial, simply an attempt to establish the facts. It is an inquisitorial process, a process of investigation quite unlike a trial.”[1]

[1] *R v South London Coroner, ex parte Thompson* (1982),126 S.J. 625

6. The purpose of an inquest is to inform the family and the public about how the death occurred and, in appropriate cases, to make recommendations with a view to reducing the likelihood of similar deaths. As a result, a coroner can make preventive recommendations concerning public health or safety, the administration of justice or ways to prevent deaths from happening in similar circumstances.

7. A coroner is prohibited from including in the findings or any comments or recommendations any statement that a person is, or may be, guilty of an offence or civilly liable.

8. The *Coroners Act 2003* provides that if, from information obtained at an inquest or during the investigation, a coroner reasonably suspects a person has committed an offence, the coroner must give the information to the Director of Public Prosecutions in the case of an indictable offence and, in the case of any other offence, the relevant Department.

9. The findings of a coroner must be based on proof of relevant facts on the balance of probabilities. The principles set out in *Briginshaw v Briginshaw* are applicable.[2] This means that the more significant the issue to be determined, the more serious an allegation or the more inherently unlikely an occurrence, the clearer and more persuasive the evidence needed for the trier of fact to be sufficiently satisfied that it has been proven to the civil standard. A coroner also is obliged to comply with the rules of natural justice and to act judicially. This means that no findings adverse to the interest of any party may be made without that party first being given a right to be heard in opposition to that finding.

The inquest

10. The inquest opened with a pre-inquest conference on 23 May 2018. Following the pre-inquest conference, the issues to be investigated at the inquest were settled as follows:

    1. The formal findings required to be made pursuant to s 45(2) of the *Coroners Act 2003* – incorporating the investigation as to how the crash occurred, including whether uncommanded pilot seat movement was the most likely cause;

    2. The basis upon which air operations involving the transport of tandem parachutists were regulated at the date of the accident and are proposed to be regulated in the future;

    3. Whether the role of the Australian Parachute Federation (APF) in relation to the carriage of parachutists in aircraft used by its members for parachute operations and the oversight of jump pilots and aircraft used for such operations is appropriate and sufficient;

[2] (1938) 60 CLR 336 at 361

4. The regulatory oversight of maintenance tasks performed by the jump pilot, in particular:

    i. Whether permitted jump pilot maintenance extends to seat removal and the securing of floor matting in aircraft used for parachuting operations; and
    ii. The adequacy of training for jump pilots in preparing the aircraft for parachuting operations.

5. Whether Skydive Bribie Island provided adequate information to its jump pilots as to risks associated with its parachuting operations and whether safety management systems to ensure compliance with the Jump Pilot Manual and/or other applicable regulations were in place and were adequate and appropriate;

6. The adequacy of the responses provided by the Civil Aviation Safety Authority (CASA) and the APF in relation to the recommendations arising out of the Australian Transport Safety Bureau (ATSB) investigation;

7. Whether any further changes to the regulation of skydiving would reduce the likelihood of deaths occurring in similar circumstances in the future or otherwise contribute to public safety.

11. During the hearing, a further issue emerged relating to the role and conduct of Ian Aviation Pty Ltd (Ian Aviation) which serviced and maintained FRT before the accident and was involved in ordering an inertia reel for FRT on two separate occasions.

12. Evidence was heard from a total of 11 witnesses over two sittings, from 24-27 September 2018 and 17-18 December 2018. A view of a Cessna U206G aircraft was conducted at the Redcliffe Aero Club on 24 September 2018. This gave an opportunity to see the Cessna seat mechanism and seat rail stops in place.

13. Comprehensive written submissions were subsequently received from counsel assisting and those represented at the inquest between February and September 2019. Those submissions have been of assistance in the preparation of these findings.

Family statements

14. Members of the Aitken, Glesk, Norman, Hohua and King families attended the inquest sittings and have expressed a range of concerns about the operations of Skydive Bribie Island at the relevant time, and the way in which aircraft maintenance was overseen in the skydiving industry.

15. Those who died in this incident were clearly loved by their families. They are missed profoundly, and I extend my condolences to their families and friends. I acknowledge that hearing the evidence about the crash and industry regulation, much of which was technical in nature, was emotionally draining and challenging to listen to. I thank family members for the patient and dignified way they participated in the inquest.

Glenn Norman

16. Mr Norman was survived by his wife of 31 years, Linda, and two daughters, Megan and Sarah. Megan Norman said that her father began skydiving very shortly after Linda Norman completed her first jump in Sydney in 1981. She said that her father clearly loved skydiving and completed over 10,000 jumps before his death. He had become a tandem master so that he could show others the exhilarating experience that was one of his passions.

17. Mr Norman was also a firefighter, starting his career with the Queensland Fire and Emergency Service in 1994. He was well renowned as a highly skilled firefighter and an extremely knowledgeable colleague. Ms Norman said that her father had a passion for helping the broader community and thrived in the role of senior firefighter. He was stationed in Logan and at the time of his death was studying to become a station officer.

18. Megan Norman spoke of the time in 2010, when her father survived a plane crash at Gladstone which also involved Adrenaline Skydivers. He had suffered three fractured vertebrae and a cracked pelvis in that incident. She said in the ensuing years her father's relationship with his family had never been better, and the time spent in this inquest was 'nothing short of heartbreaking'.

Andrew Aitken

19. Michael Aitken said that Andrew was his only son. Mr Aitken thanked the Australian Transport Safety Bureau for a thorough investigation into this accident. He believed that the recommendations made by the ATSB should be implemented in order to prevent similar occurrences. In his view, better safety mechanisms would see the parachute industry grow as passengers became conscious of higher safety standards within the industry.

Juraj Glesk

20. Juraj Glesk's daughter, Nina, said that Mr Glesk was a great father, grandfather, husband, uncle, brother and son. He was 'simply an amazing man who was loved by many'. Mr Glesk was born in Czechoslovakia and came to Australia when he was 27 years old. Ms Glesk said that her father was fun-loving, always making people laugh, and loved bringing people together.

21. Mr Glesk started skydiving in 1995 and fell in love with the sport. Later in life, after becoming a grandfather, he had wanted to stop skydiving and enjoy the simpler things in life. He had completed a security providers course and his certificate arrived a week after the accident.

22. Ms Glesk felt that the system had failed the families of all those who died in this incident and hoped that the appropriate changes would be made to 'ensure everybody's safety in the future'.

Rahuia Hohua and Joseph King

23. Mary Hohua spoke on behalf of her daughter, Rahuia Hohua and Rahuia's fiancé, Joseph King. Ms Hohua said that Rahuia and Joseph had been together for 18 months in a relationship that was turbulent at times but loving.

24. Mary Hohua was left with the care of Rahuia's children, Thalia and Cruz, who were aged 5 and 8. Mary and the children had travelled to Caboolture on the day of the accident and were waiting for Rahuia and Joseph at the drop zone. Ms Hohua said:

> *This inquest has forced us to revisit that tragic day with such an intensity that at times you feel the heat of the day, the smell of the smoke clawing its way into your psyche as every fibre screams at you in denial that this isn't happening and has happened. Rahuia and Joey, we love you and will always honour your lives the best we can.*
>
> *We ache every day but we move on because that's what it's about but it hurts – and I agree it hurts us at the end – ever since the clinical evidence that's been given – information be given and I'm – I'm hoping and I know already that changes have – are happening within the industry and that there are no more incidents…*

Skydive Bribie Island

25. At the time of the deaths, Paul Turner was the sole owner and operator of Adrenalin Skydivers Pty Ltd trading as Skydive Bribie Island. Mr Turner started the skydiving business in 2001 together with Glenn Norman.

26. In 2010, the business was incorporated with Mr Turner as sole director and owner. He continued to employ Mr Norman as a tandem master, together with a number of other staff. The business was carried on from the Caboolture airfield and, one weekend a month, from the Old Station property at Raglan near Gladstone.

27. Mr Turner was a skydiver. He held all skydiving ratings. He was a Chief Instructor and Instructor Examiner. He was not a pilot. He was not an aircraft engineer. He was, in his words, '*a guy having a go'*.

28. Mr Turner was an unimpressive witness. He adopted a defensive and combative demeanour at the inquest and was evasive and non-responsive in answers to questions. For reasons unknown, he appeared to have taken little interest in the investigation into the causes of the crash of FRT which resulted in the deaths of his colleagues and clients. His indifference was demonstrated by his acknowledgement that he had not read much of the ATSB report which he described as 'rubbish'. He appeared to have little empathy for the families and friends of those lost in this crash which could have also taken his own life.

29. Mr Turner submitted that his conduct should be judged against the system in place on 22 March 2014; and it was open to find that he acted in accordance with that system. His understanding was that he did not need an Air Operator's Certificate, and that he 'followed the rules at the time' being the '*rules of the APF and the regulations and the schedules, and all that sort of stuff*'.

30. Mr Turner submitted that he was entitled to be registered as the owner of FRT despite having no piloting or engineering experience. All that was required was that he be an Australian citizen and over 18 years of age. He said that as Chief Instructor he was entitled to delegate responsibility for each aspect of the business' operations. The pilot was responsible for the legal and safe operation of the aircraft.

31. Mr Turner submitted that maintenance was required to be carried out by a person authorised under s 42ZC of the *Civil Aviation Regulations 1998,* including a licensed aircraft maintenance engineer and in some instances, the pilot. A tandem master or drop zone safety officer (including Mr Turner) was allocated responsibility for briefing each load of student parachutists.

32. Mr Turner submitted that he was in compliance with the regulatory and legislative scheme in place at the time of the crash. He had satisfied the APF that he was a suitable person for appointment as a chief instructor and instructor examiner, including meeting a fit and proper person test and was considered by the APF to be a person of good repute. At no time before or after the crash was Mr Turner suspended or terminated from any of his roles with the APF.

33. Mr Turner pointed to Mr McCooey's evidence that he had confidence in Mr Turner's abilities as an instructor and that Adrenaline Skydivers met the standards of the APF. However, at the inquest Mr McCooey also expressed concerns about the overall operations of Skydive Bribie, including a range of serviceability issues with FRT that may have increased risk and were missed in APF audits.[3]

[3] T 4 – p4

34. Skydive Bribie advertised locally, and on the Internet, promoting tandem skydiving over Bribie Island with a beach landing. The company also advertised on its website that the price of the tandem skydive included 'scenic views as you climb to exit height.' When unable to use the Bribie Island drop zone the company made use of other zones, including a zone within the Caboolture Airfield that was clear of aircraft landing or taking off.

35. Evidence was given at the inquest by one of the tandem parachutists, Mr Kritik Kamlesh Prasad, who had jumped from FRT on the morning of 22 March 2014. Mr Prasad booked his place online via the "Adrenalin" skydive website. His evidence was as follows: [4]

- He could choose which height he wanted to jump from, and he chose the 14,000 feet jump;
- The price quoted varied depending on whether he elected to jump at a height lower than at 14,000 feet;
- If he had elected to jump at 10,000 feet, the price would have been lower;
- He received and signed a waiver of liability form when he arrived at the airfield;
- He received a short briefing about the parachute jump consisting of instructions on what he needed to do to jump properly and to land on the ground safely;
- He was not given any instruction about use of a single-point floor restraint;
- He was not told, and he did not know that he was regarded as a "participant" and not a passenger while on board the aircraft;
- He recalls that the pilot taxied him back to the reception area in the aircraft after the jump at Caboolture airfield and the pilot had some issue with the brake which resulted in a number of left turns being made on the ground.

36. Mr Turner's evidence about the procedures followed by jump masters employed by him, and the way he ran his business was:

- He did not charge tandem jumpers for jumping at different heights – he charged one amount "up to" a specific height and "operational" circumstances dictated the release height;
- Tandem jumpers were attached to the single point restraints until attached to their tandem master;
- In respect of the first flight on 22 March 2014 the jumpers could have landed "between the airplanes there (at Caboolture)" because "anywhere is a drop zone if you can land safely";
- He had no formal training in safety management systems before 2014 and never attended seminars or safety briefings run by CASA;
- He looked at the maintenance release for FRT only to keep an eye on the hours not to record or otherwise check anything on the document;

[4] T 2 - pp105 – 115

- If a pilot became aware of a defect, he would expect the pilot to tell him about it regardless of whether the pilot recorded anything in the document;
- At no point from September 2010 to March 2014 did he understand that the co-pilot's side controls were activated;
- At some time between 12 February 2014 and 22 March 2014 he noticed that the brake calliper of FRT was leaking. As it was still working, he did not take the aircraft to Ian Aviation to have the problem rectified; he spoke to someone at Ian Aviation but otherwise did nothing about the problem;
- Tandem masters returning from Raglan to Caboolture may have sat on the floor of the aircraft as passengers with their parachutes on;
- Mr Turner was not aware of any pilot removing or reinstalling the pilot seat of FRT and he never had occasion to do so himself;
- Between 2010 and 2014, there was no ramp checking of his aircraft by CASA or the APF;
- He was not qualified to give instructions to pilots about flying his aircraft and "wouldn't have a clue about half of it".

37. Notwithstanding his accreditation by the APF, based on his evidence at the inquest, I consider that Mr Turner as the owner of FRT and the principal of the business trading as Skydive Bribie Island had a scant understanding of the regulations and rules governing general aviation throughout the time that he ran his skydiving business. I agree with counsel assisting's submission that had he applied for an Air Operator's Certificate (AOC) to conduct aerial work or joy flight activities at any time before March 2014, he could not have satisfied the requirements of s 28 of the *Civil Aviation Act 1998.*

38. Mr Turner did not have the expertise or knowledge or have in place suitable practices or procedures to control an AOC organisation to ensure that air operations could be carried out safely. In short, had he been required to conduct his skydive business for a commercial purpose under an AOC authorisation he could not have done so with the extremely limited resources he operated with up to 2016.

39. Mr Turner was also not equipped to provide any significant information to the jump pilots he employed on a casual or part-time basis as to air carriage risks associated with his parachuting operations and any safety management systems needed to ensure compliance with the APF's Jump Pilot Manual. In this respect, Mr Turner was as dependent on the APF, as were the novice tandem parachutists who were 'customers' of his business, to oversight and supervise the safety of the 'airlift component' of his business.

40. The APF's Parachute Instructor Manual[5] states in relation to the appointment of chief instructors:

> *"the position of Chief Instructor of a parachute training organisation is probably the most important position within the entire APF system.*
>
> *….*
>
> *A Chief Instructor must be a person whose integrity is above reproach, whose example setting in the area of safety is impeccable, and whose professional skills are unquestioned".*

41. Notwithstanding his approval as a Chief Instructor by the APF, I consider that Mr Turner displayed a lack of understanding and insight as to his obligations in respect of the safe operation of a parachute training organisation, including safety management systems, aircraft safety and maintenance. Having regard to Mr Turner's evidence at the inquest, I would have little assurance that he is a fit and proper person to hold an appointment as a Chief Instructor should he apply for that role in the future.

42. I agree with the submission of Textron that "the fact that Mr Turner has attributed the cause of every serious aviation incident, defect or serviceability issue with his aircraft to persons or factors other than himself, and sought to justify (or downplay) the defects and serviceability issues raised by the ATSB as "reasonable" or minor, is an attempt to avoid taking accountability for his actions and responsibility for their consequences". As registered operator of FRT he was responsible for the aircraft's airworthiness and maintenance control to ensure its safe operation.

43. Evidence presented by CASA in the Airlie Beach Skydiving inquest was that some 385,000 parachute jumps are made each year of which some 180,000 are tandem jumps conducted by temporary members of the APF.[6][7] Members of the community who undertake tandem parachute jumps with organisations administered by the APF must sign a waiver and apply for membership of the APF in order to jump. This is often done moments before boarding the jump aircraft. Those persons deserve higher levels of assurance in relation to the capacity of a Chief Instructor or entity controlling the drop zone to oversee the safe operations of the organisation.

---

[5] https://www.apf.com.au/ArticleDocuments/157/PIM_201605_v5c.pdf.aspx?Embed=Y

[6] Findings of the inquest into the death of Kerri Anne Pike, Peter Michael Dawson and Tobias John Turner, page 28.

[7] The Annual Report of ExperienceCo.Com (an ASX listed company) reported that in 2019 its tandem jump volume in Australia was 131,915. It conducts tandem and solo skydiving experiences at 16 drop zones. Skydiving revenue was $80.8M.

44. In order for their safety to be enhanced, there needs to be an increased level of scrutiny of the initial and ongoing suitability of Chief Instructors and others who control skydiving operations. This would include considerations relevant to air safety such as the outcomes of audits undertaken by the APF, knowledge of aviation laws and regulations, complaints history, aircraft history, financial viability, patterns of behaviour and the person's criminal history.[8]

Cessna VH-FRT

45. FRT was a Cessna U206G aircraft manufactured in the USA in 1977. Mr Turner purchased the aircraft in late 2010 through an aviation company in Ingham as a six seater plane with dual controls. Mr Turner had FRT configured for skydiving and all seats, apart from the pilot's seat, were removed and a parachute mat and restraints added.

46. At the time of the deaths, the aircraft had a current certificate of registration. It had just over 11000 hours of time in service. However, Mr Turner's evidence was that that the engine was almost new when he purchased the aircraft and had only completed about 500-600 hours at the time of the crash.

47. The ATSB investigation found that the engine and propeller of FRT were non-standard parts fitted to the aircraft on 19 March 2010. The engine and propeller underwent a number of periodic inspections by an approved maintenance organisation with no major maintenance issues noted in the engine logbooks.

48. Six single-point restraints for use by parachutists were fitted in the cabin of FRT. The ATSB concluded, on the basis of the evidence obtained in its investigation, that it was unlikely that the parachutists were wearing the restraints at the time of the accident.

49. In 2010, the co-pilot's control column was also modified but there was no approved maintenance procedure in place for that modification. Moreover, maintenance was subsequently undertaken to re-connect (and subsequently disconnect) the co-pilot control column on one occasion to allow ICUS (in command under supervision) training of a pilot in FRT. This was not recorded in any maintenance log or maintenance release available to ATSB investigators.

50. The aircraft was maintained by Ian Aviation at Archerfield and was inspected every 100 hours. Mr Turner said that he had never had a problem with the aircraft. The last inspection was conducted on 12 February 2014, just over a month before the crash. Mr Morris Woodley, Chief Engineer at Ian Aviation said that there were no airworthiness issues with FRT at that time.

[8] A broad range of factors is set out in the Civil Aviation Authority New Zealand's *Fit and Proper Person Assessment Handbook: Procedures and Guidance*

FRT's operations on 22 March 2014

51. Mr Turner's evidence was that parachute operations planned for 22 March 2014 involved seven parachute 'loads', with the first load scheduled for a 6:30 am departure for a drop over Bribie Island.[9] The drops were planned to occur at 90 minute intervals.

52. Mr Turner was initially refused Air Traffic Control (ATC) clearance for the intended drop at Bribie Island because of unfavourable weather conditions. Clearance was later given for air operations for a parachute drop at the Caboolture Airfield drop zone at 8:15am. The first load comprised Mr Turner and Juraj Glesk, as jump instructors, with two tandem parachutists. Andrew Aitken was the pilot and this jump was uneventful.

53. Mr Turner contacted property owners at the old Farm Fantastic site on Pumicestone Road, Elimbah (some 10km north of the airfield) for the second load of the morning. ATC clearance was given for that operation to depart Caboolture at 10:04am. Juraj Glesk and Glenn Norman were the jump masters with two tandem parachutists, and Mr Aitken was the pilot. This sortie was also uneventful.

54. Mr Turner drove to the Elimbah site then returned to Caboolture where he contacted ATC Brisbane at 11:07am and obtained clearance for the third load also to be dropped at the Elimbah site. Mr Turner left the airfield by car before the last flight was taking off and did not see how the parachutists were seated in the aircraft.

55. Ms Billy-Jo O'Donnell worked part-time in Mr Turner's business. One of her roles was to receive bookings from people wanting a tandem skydive experience. She had received an on-line booking from Ms Hohua on 28 February 2014. The booking was for Ms Hohua and Mr King, and $598 was paid for a "skydive up to 14000 feet".

56. Ms O'Donnell sent an email to Ms Hohua confirming the booking for 22 March 2014 at 9:30am.[10] The booking was made via the website adrenaline.com.au. Ms O'Donnell described the website as a booking agency which charged a commission after accepting payments from customers.

57. On 22 March 2014, Ms O'Donnell met Ms Hohua and Mr King in the carpark at the Caboolture Airfield. She went "through the paperwork" with them and asked them to sign an indemnity form. She then left the airfield with Mr Turner for the next planned drop zone.

[9] Exhibit B19
[10] Exhibit B14.

58. Mr Turner had intended be on the flight leading to the deaths. The student parachutist he was to be the tandem master with had failed to appear. Had that not occurred, Mr Turner would almost certainly also have passed away in this incident.

The Pilot

59. Andrew Aitken had been working for Mr Turner for about three years as a part-time pilot who was accumulating flying hours on the weekends. He arrived at the airfield around 6:30am on 22 March 2014 and prepared the aircraft by removing the external doors and conducting "normal" checks of the aircraft, including fuel, before undertaking his engine start up routine. Mr Aitken was described as the "main pilot" and had flown around 300 loads for Skydive Bribie.[11]

60. The ATSB investigation established that Mr Aitken had held a commercial pilot's licence since February 2010. He had undertaken most of his pilot flight training at Caboolture Airfield and worked for Skydive Bribie Island on a casual basis since August 2011. Mr Aitken had flying experience of approximately 1100 hours of which approximately 500 hours were in a Cessna U206 type of aircraft. In the 90 days prior to 22 March 2014 he had flown approximately 42 hours. He held a class 2 aviation medical certificate which permitted him to fly as a pilot in private operations only, notwithstanding that he held a commercial pilot's licence.

Investigations

61. Aspects of the crash were investigated and reported upon by the Queensland Police Service Forensic Crash Unit[12] (FCU) and the ATSB.[13] I found both investigations to be thorough and professional.

62. ATSB officers arranged for the wreckage to be recovered and they conducted an investigation in accordance with the *Transport Safety Investigation Act 2003*.

63. Both reports found that the wreckage and engine were extensively damaged by fire. This meant many of the usual hypotheses open for plane crashes were not able to be completely excluded due to the extent of the fire damage. Eric Blankenstein, the Senior Transport Safety Investigator, noted that there was "a distinct lack of evidence" in this case, apart from the witness evidence.

[11] Exhibit B14, p5
[12] Exhibit A1.7 – dated 3 December 2017
[13] Exhibit F1 – dated 23 June 2017

64. The ATSB investigations which resulted in the report were conducted by a team of qualified investigators and experts trained in evaluating the cause of aircraft accidents. The evidence of Mr Blankenstein underscored the independent, extensive and thorough investigation into the crash of FRT by the ATSB.

Engine and propeller

65. The engine was disassembled and inspected in the presence of officers from the QPS, ATSB and CASA. No defects were located which may have contributed to the crash. The propeller was inspected, and the damage to it indicated the engine was running with significant power at the time of impact with the ground. While the propeller actuator oil pressure tube was found to be about 75% obstructed with a build-up of a grey solidified substance, the ATSB assessed that the obstruction did not contribute to the crash.

66. There was no evidence that the engine or propeller were not in an airworthy state when the aircraft crashed. Having regard to this evidence and the evidence of persons who witnessed the take-off or crash, the ATSB found that it could not be determined whether the aircraft sustained a partial power loss.

67. Mr Blankenstein noted that the key witnesses who were present at Caboolture Airfield on 22 March 2014, all of whom are pilots, gave largely consistent accounts of the aircraft's movements. There were differences in the pitch up seen by the witnesses and "differences and inconsistencies in engine power, whether they heard the power come back from the aircraft or whether they heard it full power or whether they heard it (at) full power, come back, and then back on again".[14]

Uncommanded pilot seat movement

68. The QPS and ATSB reports both investigated the possibility that uncommanded pilot seat movement was the cause of the crash. The ATSB assessed that witness' descriptions of the aircraft's movement after take-off were consistent with previous accidents in Cessna 206 aircraft involving loss of control following uncommanded seat movement.

69. The Cessna 206 pilot seat slides forward and rear along two parallel metal rails which are attached to the floor of the aircraft. The rails have slots at the front and rear to allow the seat to be removed from the rails. The seat is secured by a lever and claw under the front of the seat base which locks two primary seat latch pins in place in holes in the rails.[15] The seat rail is intended to have four stops attached to the rail to prevent the seat from sliding off the rails.[16]

---

[14] T2 - 2
[15] Exhibit F1 – figure 3
[16] Exhibit F1 – figure 5

70. The seat stop is a small 'U' shaped piece of metal which is secured to the rail by a small pin. The seat rails were inspected at Ian Aviation on 12 February 2014 as part of the 100 hour air worthiness inspection. The seat stops are designed to be easily removed. If the seat stop is fitted towards the rear of the rail, seat slide may still result in a pilot losing control of the aircraft if they are either unable to reach the controls or pull back on the controls as they slide back.

71. The QPS obtained a statement from Ronald Creed, who is the holder of fixed wing aircraft and helicopter licences.[17] He owns a Cessna 185 fixed wing aircraft and operates two registered grassed airstrips on his grazing property, 'the Old Station' at Raglan, privately and for hire. He has over 3500 hours of flying time in fixed wing aircraft. Mr Creed's evidence was that he never had any issues with Mr Turner's skydiving operations at the Old Station.

72. Mr Creed recalled that over a weekend in March 2014 Mr Turner had been operating FRT and his skydiving operation from Old Station. While the Cessna was being refuelled for the return flight to Caboolture, Mr Creed stood at the pilot's door of the aircraft and noticed that the pilot seat was not sitting on the rails at all. Rather, the whole seat was sitting on the floor. Mr Creed noticed that the seat was "virtually stuck in the carpet" although the front part of the seat could still have been "connected" to the rails. There were marks in the carpet from where the seat had been catching. Mr Creed demonstrated how to reinstall the seat but noted that the pilot did not take his concerns seriously.

73. Mr Creed recalled telling the pilot at the time that the seat was not fitted on the rails properly. Mr Creed immediately fitted the seat on the rails. While doing so, Mr Creed noticed that the rear seat stops were missing. He had a conversation with the pilot (Andrew) about it, to the effect that the seat stops needed to be installed. He warned him of the serious danger associated with not having the seat on the rails but thought he was not taken seriously by the pilot. The evidence establishes that the rear seat stops were not fitted to FRT when inspected by Mr Creed and were not likely to have been in place at the time of the accident.

74. Mr Creed did not discuss the matter with Mr Turner as he thought the pilot would rectify the situation. The following weekend, Mr Creed recalled being told about the crash. Mr Creed also noted that FRT did not have a seat stop inertia reel fitted which would have prevented the seat from sliding backwards while the seat lever was locked. Mr Creed otherwise had no concerns about the maintenance of the aircraft.

75. A review of in-flight video footage of parachute operations conducted in FRT prior to the last flight showed that while a seat rail rear stop was in place in flights conducted after the last maintenance inspection (12 February 2014), it did not appear to be in place on the day of the accident.

[17] Exhibit B5

76. The extensive damage to the aircraft (in particular the cockpit and cabin area) limited the capacity of investigators to determine the pilot seat position, and if the seat was secured in a forward position by the primary seat stops. ATSB investigators were able to determine that it was likely that while the seat rail rear stop was in place after the last maintenance inspection, it was likely not fitted on the day of the crash. The ATSB concluded that it was not possible to determine if the pilot's seat was on or off the seat rails in its penultimate or final flights.

77. There was no evidence before the inquest in relation to the reason the seat was removed from the rails at the Old Station on the day identified by Mr Creed. However, I agree with the submission from Textron that whatever the reason for the seat's removal, to do so required the deliberate step of removing the rear seat rail stops.

78. While the evidence of Mr Creed points to seat slide as a possible cause of the crash, it is also clear that he reinstalled the seat. FRT also successfully completed two sorties on the morning of the crash. It was flown by at least one other pilot between its flight from Raglan to Caboolture the date of the crash. Attempts to hear from that pilot at the inquest were not successful.

79. The possibility of a secondary seat stop modification was also investigated by the QPS and ATSB. The modification was designed to prevent uncommanded rearward movement of the pilot seats, and resulting loss of control, in the event that the primary locking pins did not engage or failed. The device is essentially a belt on an inertia reel that connects the seat frame to the floor and limits the travel of the seat should the primary latch pins not engage into the seat rails.[18]

80. The ATSB noted that within its "notifications database" there are 16 instances of uncommanded seat slide/movement in single-engine Cessna aircraft after April 1969. The issue of seat slide in Cessna and other aircraft was considered by the Victoria's State Coroner in the 2005 inquest findings in relation to the death of Ramasamy Ayathurai:

> *Seat slippage appears to be a not uncommon phenomenon in aircraft (and especially in single engine Cessna aircraft). Without redesign and recall, the initial pilot and/or the routine maintenance and inspection process are potential countermeasures. More may need to be done. With the potential for human error in this visual inspection and testing process, re-fitting of an improved, safer design by way of recall at the manufacturer's (or if necessary the Regulator's) initiation would be a preferred option as it avoids the ever-present consequence of human error. It appears that the manufacturer, Cessna, has gone some way down this path with the making of its "offer of a free secondary seat-stop system for all single engine Cessna owners."*

[18] Exhibit F1 – figure 4.

81. In 2007, Cessna issued a Service Bulletin relating to the fitment of the secondary seat stop. It was categorised by Cessna as a "mandatory" requirement for the pilot's seat and recommended for the co-pilot's seat. The associated cost of installation was offered free of charge to aircraft owners. The compliance date for the Bulletin was extended several times due to part supply delays and was current on 22 March 2014.

82. ATSB investigators found that the US Federal Aviation Administration (FAA) did not mandate the Service Bulletin. CASA indicated that the secondary seat stop modification was not mandatory in Australia, because the FAA had not mandated it by issuing an airworthiness directive.

83. ATSB investigators found that the secondary seat stop modification was not fitted to the Cessna U206 at the time of the crash, nor was it required to be fitted under Australian regulations.

84. Mr Woodley stated that when a 100 hour inspection for the FRT was conducted in 2011 he offered to order an inertia reel. However, he said that Mr Turner advised he did not want it fitted as he was worried about the extra weight in the aircraft.[19]

85. Mr Woodley confirmed that while the Service Bulletin provided the inertia reel was a mandatory installation, CASA had not endorsed its mandatory fitting in Australia. Mr Woodley also said that he had noticed the seat stops missing at the last 100 hours inspection in March 2014 and had replaced them.

86. The ATSB report found that the left primary seat stop had failed at a drill hole about 50 mm above its end due to bending overload from a left-to-right side load. At the inquest, Mr Woodley agreed that the shearing of the left primary seat stop latch pin may indicate that the pin was correctly seated at the time of the crash.

87. Examination of the inboard and outboard pilot seat rails recovered from the wreckage indicated that the pre-accident serviceability of those components was within the aircraft manufacturer's requirements and within relevant wear limits. Logbook entries showed that on 23 August 2013 the outboard pilot seat rail had been replaced with a new rail and several rivets on the inboard rail had been removed and replaced as well. The seat rails were last inspected on 12 February 2014, as part of the 100-hour airworthiness inspection and certification conducted by Ian Aviation.

[19] B21.1

88. The APF submitted that if the seat was on the rails at the time of the crash, some other factor must have been in play in the development of the crash. As to that and absent loss of power, radical weight shift of the parachutists in the plane, or possible interference with the flight control system by an unsecured push control rod, the only other reasonable possibility was that of some kind of pilot error during flight in controlling the aircraft after take-off involving pulling back on the yoke. The APF also noted that it was possible that the pilot did not properly check that the seat was locked in the rail before take-off as part of his pre-flight routine.

89. The evidence established that it is the pilot's responsibility to check that the pilot seat is on the seat rails and locked. That procedure is part of the pre-flight check. The APF submitted that if that check was done, the seat would not have slid. A failure to perform the check would be a pilot error and a cause of the accident whether that error be classified as a direct, contributing or root cause.

90. Mr Turner's submissions also argued that the evidence was not sufficiently strong or persuasive as to enable a conclusion that the probable cause of the crash was the result of uncommanded seat slide for the following reasons:

- Mr Woodley's evidence that the seat pin could have been correctly seated in the drill hole and the seat rail at the time, and broke as a result of shearing forces;
- Mr Woinarski's statement to the QPS that he physically observed the pilot 'seated in the pilot's seat holding onto the controls' after the crash;[20]
- The three recovered feet of the pilot's seat 'did not display any splay-type outward bending damage that would be indicative of the seat feet being forced past the seat rail';
- Accepting the probable absence of the rear seat stops, it is highly likely that uncommanded rearward pilot seat movement even to the edge of those rear seat stops would have resulted in loss of control that could not be recovered from; and
- The absence of a tandem master directly behind the pilot's seat on the flight in question could not be established, having regard to Mr Turner's normal practice.

91. Textron submitted that even if the secondary seat stop or inertia reel had been installed, it would also have had to be removed with the seat stops to allow the seat to be removed.

[20] The Autopsy report (exhibit A2.2) also indicated that Mr Aitken's left palm was less affected by the effects of fire.

Other potential causes of the crash

92. ATSB investigators also looked at a number of other potential contributors or causes of the crash. While the ATSB does not "differentiate between causal and contributing factors" it acknowledged that causal factors may be described as "direct, contributing and root causes". The ATSB submission noted that it seeks a higher standard than might apply to make a finding of 'causation' using the standard of proof 'on the balance of probabilities'.

93. Based on the recollection of a number of witnesses that the sound of the engine seemed reduced, or varied during the take-off, the ATSB investigated partial power loss as a cause of the crash. The examination of the propeller did not identify anything that would have precluded normal operation. The examination of the propeller damage showed the engine was operating and driving the propeller with significant power when the aircraft impacted the terrain.

94. However, given the extensive fire damage, an unidentified mechanical defect could not be ruled out as a possible contributing factor. It could also not be determined whether the left turn was a deliberate manoeuvre by the pilot, the result of the developing aerodynamic stall or movement for some other reason.

95. Flight control obstruction was also identified as a possible cause of the accident. Examination of the aircraft's maintenance history and the wreckage identified that the flight control system on the co-pilot's side had been modified without reference to an approved procedure.

96. Additionally, the ATSB found (based on discussions with Mr Turner) that the co-pilot's controls were reconnected and disconnected after the initial modification work without being documented. ATSB investigators concluded that these actions had removed any assurance that qualified personnel safely conducted the work.

97. The co-pilot's elevator control pushrod was disconnected at one end. While it is possible that the rod was cable-tied at the time of the crash, it is also possible it was unsecured. The ATSB found that if unsecured, there was potential for the rod to contact other flight control components located behind the instrument panel. This, in turn, could have prevented the full and free movement of the flight control system. However, given the extent of the fire damage, the ATSB investigators were unable to determine if this was the case.

98. Mr Woodley's evidence was that just the yoke on the co-pilot's side had been removed. At the inquest, Mr Woodley maintained that the pushrod had not been removed. In short, he did not accept that the pushrod had been removed and he did not accept that is what was recorded on the maintenance record in question. Mr Woodley's evidence was that the pushrod was secured with a tie wrap.

99. I accept the submission on behalf of Mr Turner that if the elevator pushrod was in existence and secured behind the control panel when FRT was serviced on 12 February 2014, in all likelihood, it remained secured on 22 March 2014. There is no evidence that suggests otherwise.

100. Mr Turner's evidence was that he had no specific understanding of the mechanism for deactivation of the co-pilot's controls. At the inquest he agreed that FRT's co-pilot controls were reconnected on one occasion shortly after he obtained the aircraft but were not otherwise disconnected or reconnected as he engaged pilots with significant flying hours.[21] However, it was submitted on his behalf that he may have been confused between FRT and another aircraft he operated, TZV. This is supported by the fact that the modification to remove the push-rod was recorded by the licensed aircraft maintenance engineer (LAME) at Toowoomba, but no record was made by that LAME of the reconnection.

101. I accept that there was no requirement for Mr Turner as owner to have been aware of the state of the secondary controls of FRT. He was entitled to rely on the periodic inspections being competently undertaken by the LAMEs of Ian Aviation. As the aircraft was deemed airworthy, he could have reasonably considered that there was no cause for concern as to the state of the secondary controls as at the date of the crash.

102. The ATSB also investigated various aircraft defects and serviceability issues related to the aircraft, including a leaking wheel brake and the aircraft operating for some five months with fuselage damage. The ATSB report and the evidence of Mr Blankenstein were critical of Mr Turner, as the registered owner of FRT, permitting FRT to be flown for some 44 hours while labouring under the fuselage damage in which the fuselage was found to be cracked.

103. The ATSB was also made aware of a nose landing gear repair that, in addition to the flight control reconnection and disconnection discussed above, was also not documented. The ATSB report noted that "this did not provide assurance that the tasks were conducted correctly and by appropriately-qualified personnel".

104. While these issues were not found to have contributed to the crash, they had the potential to reduce the safety margin of the aircraft. Mr McCooey agreed in his evidence that those factors increased risk and was concerned that APF audits did not identify those matters.[22]

Single point restraints

105. In relation to occupant safety, the ATSB also investigated the use of single-point restraints and dual-point restraints, and the safety briefings provided

[21] T6 - 70
[22] T4 - 4

to occupants of FRT. As required by civil aviation regulations, and APF policy, there were six single-point restraints fitted in FRT's cabin.

106. Interviews with tandem parachutists who had recently jumped from FRT, including earlier on 22 March 2014, confirmed that the restraints were not used. On that basis, ATSB investigators concluded that it was also likely each of the deceased were not wearing the restraints.

107. The type of restraints in this case might ultimately have not made any difference to the outcome given the severity of the crash. However, restraints reduce the risk of load shift which can lead to reduced aircraft controllability. Relevant to FRT's crash, a sudden load shift may have occurred after take-off as a result of the reported increasing angle of bank and/or nose high attitude.

108. The ATSB found that the single-point restraints currently fitted to Australian parachuting aircraft may not be consistently used by occupants. While research shows that they may not be as effective as dual-point restraints in preventing injury in an accident, they do limit the movement of parachutists within the aircraft, therefore reducing the likelihood of load shift during flight. That affords some occupant protection and ensures the aircraft remains controllable.

109. ATSB investigators also found from interviews with previous/recent tandem parachutists at Skydive Bribie that safety briefings were not consistently carried out. Briefings are intended to include the safety details of the aircraft, how to wear a restraint and how to brace or egress in the event of an emergency. They are required to be conducted in accordance with civil aviation regulations and APF policy. While they might not have made a difference in this case given the severity of the crash, in general, safety briefings improve an occupant's ability to react appropriately during an emergency situation.

What was the cause of the crash?

110. In summary, the ATSB Report focussed on three specific "possible factors that led to the accident". These were partial power loss, uncommanded rearward movement of the pilot's seat and a flight control issue.

111. I accept the submissions from counsel assisting that the evidence of the eye witnesses to the take-off and climb of FRT, the exclusion of any likelihood of poor fuel quality together with the absence of any cogent evidence of an engine failure after take-off, make a partial power loss due to engine malfunction the least likely explanation for the accident.

112. The evidence also disclosed that Mr Aitken had the necessary qualifications and a sufficient level of experience as a pilot such that it is likely that he would have known how to handle and effectively control the aircraft, if a partial engine failure after take-off had occurred.

113. Counsel assisting submitted that the two primary explanations for the immediate events or conditions that caused the accident were sudden rearward movement of the pilot's seat and the jamming of the elevator control by reason of the co-pilot's elevator control pushrod being or becoming unsecured and, on take-off rotation, coming into contact with flight control components behind the instrument panel of the aircraft.

114. The evidence of CASA's Principal Airworthiness Engineer, David Punshon, was that if the pushrod was not removed or secured appropriately, it could "freely move around" and that depending on the length of the pushrod and the orientation of the aircraft, "there's potential for jamming (of the elevator)". However, he was not able to say whether it was likely or unlikely that an unrestrained pushrod could have affected the deflection of the elevator.

115. It was submitted for Mr Turner that the flight control issue can be ruled out as a possible cause or contributing factor to the incident. It was noted that although the ATSB concluded that the co-pilot's elevator pushrod was removed, based on the logbook entry of 8 October 2010, it was possible the entry instead referred to the disconnection and securing of the elevator pushrod so as to avoid it floating freely. Either possibility presented on the evidence of the LAME who conducted the modification when interviewed by the ATSB.[23]

116. I consider that there is insufficient evidence to draw any positive conclusion that a loose pushrod could have caused, or had the potential to cause, a locking or jamming of the elevators.

117. Mr Turner submitted that there were three alternative possibilities:

- The aircraft was out of trim;
- Pilot error; or
- An unknown and unidentifiable mechanical defect.

118. The ATSB submitted that the inquest produced no significant new evidence to change the finding on page 53 of its June 2017 report:[24]

> *Shortly after take-off, and for reasons that could not be determined, the aircraft aerodynamically stalled at a height from which the pilot was unable to recover control prior to collision with terrain.*

Conclusion as to the cause of the crash

119. Counsel assisting submitted that it was open for me to find that it was probable that on 22 March 2014:

[23] Exhibit F1, p10
[24] Exhibit F1

(a) FRT's pilot seat slid back immediately after rotation of the aircraft on its last flight;
(b) The seat was either not securely in place on its rails or the primary seat latch pin was not properly engaged and locked in the seat rail/track;
(c) The rear seat stop was not fitted on the pilot seat rail;
(d) The pilot lost directional control of the aircraft; with the consequence that;
(e) The aircraft aerodynamically stalled at or below 200 feet; and
(f) The pilot was unable to recover control of the aircraft before it impacted the ground.

120. Such a finding assumes that Mr Aitken failed to ensure that the pilot seat was on the seat rails and locked prior to take off. Although Mr Creed's evidence suggested that Mr Aitken had flown with FRT's seat off the rails on the previous weekend, he also said that he reinstalled the seat. Apart from Mr Creed's observations, there was very little evidence to support a conclusion that Mr Aitken was not a careful pilot. FRT was also flown in the intervening period by at least one other pilot and there were two uneventful sorties on the morning of the crash.

121. After considering the evidence and all the submissions, and having regard to the ATSB's conclusions in relation to other possible causes of the crash and the extensive damage to FRT, I do not consider there is sufficient evidence to comfortably reach the conclusion that there was an uncommanded rearward movement of the pilot's seat that caused the pilot to lose directional control of the aircraft. I have also had regard to the principle in *Briginshaw*[25] that the more serious the allegation and its consequences, the higher the level of proof required for a matter to be substantiated.

122. I am unable to find precisely what caused Mr Aitken to be unable to operate the flight controls of FRT resulting in an aerodynamic stall and the aircraft falling to the ground.

Autopsy results

123. The QPS Investigation Report provides details of steps taken by various police officers to obtain information and evidence relating to the accident and the steps taken by the Disaster Victim Identification Squad to recover the bodies of the deceased and transfer them to Queensland Health Forensic and Scientific Services at Coopers Plains on 22 March 2014 for identification and autopsy.

124. Autopsies were undertaken and other identification procedures and protocols were completed by 31 March 2014. Autopsies were conducted by both Professor Peter Ellis and Dr Rohan Samarasinghe. Associate Professor Alex Forrest also conducted dental examinations.

[25] (1938) 60 CLR 336 at 350

125. Andrew Aitken's autopsy report indicated that there was no medical evidence of any underlying incapacity that may have contributed to or caused loss of control of the aircraft. He had suffered a severe chest injury consistent with impact onto the front of the chest wall that caused his death before the effects of the fire took over. The toxicology results for Mr Aitken detected no alcohol or drugs of addiction in the samples tested and carbon monoxide levels were normal.

126. Mr Norman and Mr King's autopsy reports also indicated that they had suffered severe chest injuries consistent with impact onto the chest wall. There was no evidence of smoke inhalation, consistent with a very rapid death from chest injuries.

127. Mr Glesk's autopsy report indicated that he had suffered rib and sternal fractures and injures resulting from severe heat. His cause of death was determined to be the effects of fire and chest injuries. Ms Hohua's cause of death was determined to be the effects of fire, as the injuries she suffered were not considered to be rapidly fatal.

Findings required by s. 45

128. The primary focus of this inquest was to make the findings required pursuant to section 45(2) of the *Coroners Act*. I am required to find, as far as is possible, who the deceased persons were, when and where they died, what caused the deaths and how the deaths occurred. As a result of considering all of the evidence, including material contained in the exhibits, I am able to make the following findings in relation to the deaths:

Identity of the deceased – Andrew James Aitken, Glenn Robert Norman, Juraj Glesk, Rahuia Ali Hohua and Joseph Aloysius George King.

How they died – Each person died when shortly after take-off a Cessna U206G aircraft modified for parachuting operations aerodynamically stalled at a height from which the pilot was unable to regain control. The aircraft crashed into the Caboolture airfield and was engulfed in a fuel-fed fire. None of those on board the aircraft survived the crash. The reasons for the aerodynamic stall could not be established as extensive fire damage prevented examination and testing of most of the aircraft components.

Place of death – Caboolture Airfield, Caboolture, Queensland Australia

Date of death– 22 March 2014

Cause of death – Andrew Aitken, Joseph King and Glenn Norman each died as a result of blunt force chest injuries following an aircraft crash

Juraj Glesk died as a result of the effects of fire and chest injuries following an aircraft crash.

Rahuia Hohua died as a result of the effects of fire following an aircraft crash.

Regulatory oversight of parachuting operations

129. Issues relating to the safety and regulation of the parachuting industry have been canvassed in other inquests, including the 2008 inquest into the five deaths arising from the 2006 air crash at Willowbank and, more recently, the Inquest into the deaths of Kerri Anne Pike, Peter Dawson and Tobias Turner in October 2017 at Airlie Beach.

130. Following the Willowbank inquest the State Coroner recommended that CASA "*revise its policy of devolving the surveillance of all aspects of publicly offered tandem parachuting to the APF.*" However, that recommendation was not accepted, and having regard to the clear policy position of the Commonwealth Government and CASA I determined not to revisit that issue at this inquest.

131. The framework of self-administration by Recreational Aviation Administration Organisations (including the APF) was endorsed by the Australian Government following the 2014 Aviation Safety Regulation Review Panel Report.[26] That Report described self–administration as follows:

> *The concept of self-administration is an Australian system where these groups are responsible for their own registration, licensing, training standards and airworthiness. They operate under a system of inter alia, exemptions, delegations and approvals from CASA, although the completion of the draft Part 149 will formalise the framework in the regulations. RAAOs are responsible for the safety, welfare and standards of their members. CASA conducts periodic checks of their governance and administration, including oversight of their control of licence and airworthiness standards. The success of these groups is highly dependent on the governance, efficiency and knowledge of their governing bodies and it is on these areas that CASA has to concentrate its oversight activities. In the Panel's view, there are three basic principles that have to be demonstrated before CASA should authorise self-administration, and the RAAO should continue to demonstrate these principles on an ongoing basis to retain their authority:*
>
> *– have stable, capable and active governance*
> *– demonstrate it has control over its membership*
> *– recognise that the regulator retains ultimate authority for safety oversight and regulation.*
>
> *Self-administration is an efficient, economic and reasonable form of regulation, but is not without its challenges. Most of the management workforces are part-time volunteers and, in some cases, their enthusiasm outstrips their skills and experience, particularly in relation to the demands of corporate governance. There is a marked variability*

[26] http://www.dotars.gov.au/aviation/asrr/files/ASRR_Report_May_2014.pdf

between clubs, particularly in relation to teaching standards and oversight abilities.

132. The Panel's report noted that sports and recreational aviation industry accounted for approximately 14 per cent of all aircraft hours flown in Australia but almost 40 per cent of aircraft. Importantly, the Panel concluded that:

> *…self-administration can only work effectively if there is a well-managed system to ensure industry oversight and it is applied to all personnel and aircraft in the category. The Panel considers that self-administration, if conducted under the principles discussed, is an acceptable system of safety oversight in an environment where risk to third parties is low. (*emphasis added*)*

133. The ATSB Report described the specific framework for the regulatory oversight of parachuting operations and the classification of tandem parachutists in Australia in 2014. The main features of that regulatory framework are:

- The regulation of sports aviation is largely 'devolved' to approved self-administering ('peak') bodies of which the APF is one such body;
- As at 2014, the APF was responsible for the oversight of 57 parachute training organisations throughout Australia;
- Parachutists who pay for the services of one of the training organisations must become temporary members of the APF in order to undertake a jump sortie;
- CASA maintains its oversight of sport aviation by auditing the peak bodies that administer each sector;
- At the time of the accident, the APF had a technical committee of 7 full-time employees (including a CEO);
- The conduct of APF audits of member activities is largely left to Area Safety Officers (ASOs), who are highly experienced skydivers, being 'elected volunteers', given the task of conducting member audits in their assigned state/territory areas. Apart from parachuting experience, ASOs require no other aviation experience or qualification;
- Two corporate audits of the APF were carried out by CASA over the period 2005 to 2015, one in August 2008 and the other in July 2012. No significant adverse findings emerged from those audits;
- Over the above period, CASA also carried out two "special audits" (in 2008) relating to two operators of parachuting activities in conjunction with the APF and one "functional" audit of the APF, conducted in 2010, by which it concluded that the APF had "an appropriate self-auditing process" in place.

134. Regulation 152 of the *Civil Aviation Regulations 1998* provides that a person must not make a parachute descent if the descent is not:

    a. authorised in writing by CASA; and
    b. conducted in accordance with the written specifications of CASA.

135. The clear policy position of CASA is to give "priority to the safety of passengers", which includes "Commercial (fare paying) recreation (e.g. joy flights)". However, it views parachutists, including novice tandem jumpers, as "participants" in a risky sport aviation activity for the entirety of the experience engaged in by the parachutist. Accordingly, organisations providing skydiving experiences for paying tandem skydivers are engaged in 'private' operations as far as aviation regulation is concerned and are therefore not required to have an air operator's certificate (AOC) to authorise the conduct of the flying operations involved.

136. The evidence of Mr Anthony Stanton, CASA's Manager of General Aviation and Recreational and Sport Aviation, was that the assumption of risk by participants in parachuting operation extends to the risk associated with travelling in the aircraft used by operators for the purpose of the ascent.

137. Mr Stanton cited as an example of increased risk the fact that parachuting aircraft are not fitted with seats and conventional restraint systems. CASA's submission noted other modifications that increased the risk of travelling in such aircraft, including the removal of the co-pilot control column, and the replacement of rear cargo doors with a Perspex roller. The submission also noted that a flawed exit by a parachutist might cause an aircraft to crash.

138. Mr Stanton's evidence was that while this issue was reviewed following the Willowbank inquest, CASA had decided that self-administration by the APF was "still the appropriate model of regulatory oversight for tandem parachuting operations". However, CASA had issued a direction (under CAR 209) intended to "lift the standards associated with aircraft operations and aircraft maintenance in support of tandem jumps".

139. Relevantly, the CAR 209 instrument, CASA 405/09, required jump aircraft when dropping parachutists to be operated in accordance with the APF Jump Pilot's Handbook, and the pilot in command of a jump aircraft was required to hold an APF Jump Pilot's authorisation.

140. Jump aircraft that are not Class A aircraft must be maintained as Class B charter aircraft as if "not in the private category" and must have a current maintenance release issued in at least the charter category. The directions contained in that instrument have now been replaced by an instrument in substantially similar terms (CASA 84/18).

141. While CASA provides limited funding to the APF to discharge a number of responsibilities in relation to the conduct of parachuting operations, APF staff undertaking audits of member organisations (who until mid-2016 were volunteers) are not trained to look specifically at the flying side and do not look at pilot competencies or capabilities.

142. As Safety and Training Manager of the APF, Mr Richard McCooey, noted in his evidence the focus of audits is the operational side of parachuting.[27] Mr McCooey also noted that while most jump pilots hold commercial pilot licences there was a shortage of jump pilots, who were required to do a biennial flight check of their flight competencies with CASA. Jump pilots do not need to be a commercial pilot but require a minimum of 200 hours experience. He agreed that as part of the auditing system and as part of the oversight system, there was no real capacity for APF auditors to assess the competencies of pilots.

143. Parachuting organisations such as Skydive Bribie Island are not required to have a "chain of command" with a Chief Pilot approved by CASA in place. The CEO of Skydive Bribie, Mr Turner, had around only 13 hours experience as a student pilot. Parachuting organisations are not required to have a head of flying operations, or anyone with relevant qualifications within the organisation competent to take responsibility for ensuring that pilots undergo training and checking in respect of the conduct of flights in jump aircraft.

144. CASA submitted that the ongoing proficiency of jump pilots (whether commercial or private pilot qualified) is tested and maintained in the same way as pilot testing within an AOC system – the biennial flight review requirement. These are conducted by flight instructors who are licensed under Part 61 of the CASR. CASA also submitted that CASA instrument 06/16 (84/18) sets out the process needed to obtain jump pilot authorisation. Under this instrument pilots are required to undertake specific and further training relevant to parachuting operations. Those requirements were introduced after the Willowbank plane crash.

145. In 2014, there was no requirement for an APF club member to have a safety management system (SMS) in place or to have any organised system for ensuring part-time pilots were fully conversant with the procedures and practices required to be adhered to ensure the safety of flight operations. There was no system of consultation or documented exchange of information between pilots used by an organisation to ensure that all pilots operating a particular aircraft at different times were aware of air safety issues relating specifically to the aircraft (beyond entries on a maintenance release) or operational issues generally.

[27] Transcript, 27/09/2018, p 4-10

146. CASA's submissions noted that there was also no requirement for an AOC holder "of a similar size" to have an SMS at that time. In 2016, the APF worked with CASA to require APF club members to have a SMS in place. While the minimum requirements for that are set by the APF, each club adds their own requirements to that SMS for their own local needs.[28]

147. The post-2016 advent of an APF-imposed SMS on its skydiving club members has required APF auditors to obtain a level of understanding of the concept of a SMS in the context of skydiving operations. According to Mr McCooey, "during the audits, the SMS is assessed, and the workings of the SMS are also assessed during the audit process each year".

148. Counsel assisting submitted that given that APF auditors are not required to have experience or qualifications as a pilot in order to assess the flying operation aspects of a skydiving activity conducted by an APF club member, it is difficult to see how any risk management measure determined by a club member to be necessary for its flying operations is capable of effective evaluation or enforcement by the APF. Moreover, there was no indication in Mr McCooey's evidence that APF auditors or AFOs have a depth of experience in assessing whether a club member organisation has a thorough understanding of SMS requirements, or that non-pilot qualified owners of aircraft used for parachute descents have the capacity to implement a SMS in relation to the flying component of their parachuting operations.

149. The form used by APF auditors for the 2010 Club Audit and Risk Assessment of Mr Turner's organisation ("Queensland Adrenalin Skydivers"), section 4 relates to "Pilot Operations". The only pilot listed on the form at that time was a person named L. R. Sharpe. The specific matters subject to audit concerning the pilot were whether he/she:

- holds a valid medical certificate;
- is endorsed on type;
- meets minimum experience requirements;
- has undertaken a biennial flight review;
- has been briefed in the handling and use of the emergency parachute; and
- understands the requirements of CASA instrument 405/09.

150. All of those matters on the completed form were ticked "yes" as was the box asking whether the 'nominated' senior pilot is "aware of his/her responsibilities".

151. However, the form also notes that the "senior pilot" was not present during the audit, and that the Club did not have an Aircraft Operations Procedure manual at the time. In answer to the question: "How does the operation ensure compliance with SOPs (standard operating procedures), CJPM

[28] Transcript, 27/09/2108, p 4-13

(jump pilot manual) or Operation Manual", the answer given was "Daily Briefing".

152. Counsel assisting submitted that in circumstances where there was no Operations Manual, no evidence of SOPs for the flying operations undertaken, no evidence of discussions with the one pilot noted on the "Pilot List", no records of the content of any 'daily briefing' of a (part-time) pilot and no records of pilot training (noted on the form as 'not kept' by the club member or the registered operator of the aircraft), it is difficult to comprehend how an APF auditor could be satisfied as to the matters listed on the form relating to pilot knowledge and competency.

153. I accept the submission of counsel assisting that as at 2014, the capacity of the APF to conduct audits of jump pilot competency and the safety management of aircraft operations by non-pilot club members or undertake surveillance of the flying operations of club members was limited. The consequence of this was that regulatory oversight of those operations and the conveyance of tandem parachutists in jump aircraft before deployment of those parachutists from the aircraft was inadequate**.** As the Aviation Safety Review Panel Report concluded "self-administration can only work effectively if there is a well-managed system to ensure industry oversight and it is applied to all personnel and aircraft in the category".

154. The final report of the ATSB noted that the CAR 209 direction contained in CASA instrument 06/16 (84/18) "*offers limited assurance that effective risk controls such as key operational /maintenance personnel, pilot checking and training, formalised operating procedures and increased oversight will be applied to parachuting operations*". The ATSB recommended that CASA introduce

> "*risk controls to parachuting operations that provide increased assurance of aircraft serviceability, pilot competence and adequate regulatory oversight".*[29]

155. The ATSB report also noted that CASA viewed the "airlift component" of skydiving operations to be an "integral part of the whole operation" albeit but one "part of the total system". CASA "empowers the APF to administer all parts of the operation and does expect that the APF will provide a particular level of oversight of the airlift component, including the operation of the airlift during the jump sortie, oversight of the pilot conducting the operations, the general condition of the aircraft, or adherence to the aircraft manufacturer's maintenance schedule".

156. In relation to the surveillance of parachuting jump aircraft, Mr Stanton's evidence was that CASA was planning to enhance that surveillance by ensuring that staff in his Branch "conduct more regular inspections of such

[29] Exhibit F1, p 61

aircraft to ensure, amongst other things, that they are being maintained to the requirements specified in instrument CASA 06/16".[30]

157. As counsel assisting noted "more inspections" in the context of the former operations of Skydive Bribie Island would be satisfied with just one inspection, as Mr Turner confirmed there were no ramp checks of FRT to his knowledge at all.

158. Mr Stanton also confirmed that Part 149 of the CASR was brought into existence on 12 July 2018. It commenced on 14 July 2019. Under Part 149, self-administering organisations such as the APF will be certified by CASA in "a manner similar to that required for an Air Operator and other aviation authorisation holders".[31] It is intended that new provisions in Part 105 CASR will "specifically prescribe the rules for sport parachuting from an aircraft", including "minimum standards for pilots involved in parachuting operations".[32]

159. The philosophy underpinning the new regulations is to "provide a governance arrangement, essentially, for self-administration. It brings a number of pieces of the puzzle together, formalises the relationship both between CASA and the APF and between the APF and its members."[33]

160. The "construct" of Part 149 is said to link the various safety system requirements that would otherwise be required of an AOC, into the ongoing system of self-administration.

161. The *Civil Aviation Legislation Amendment (Parts 103, 105 and 131) Regulations 2019* will not commence until March 2021. Accordingly, it is difficult to assess at this time whether the introduction of Part 149, read with Part 105 within the ongoing framework of self-administration of tandem parachute operations, will have the effect of further minimising CASA's "regulatory footprint" on small capacity operators, or whether it will enable the APF to manage the safety risks of all "components" of those operations effectively.

162. As the ATSB submission noted the regulations do address matters such as key personnel and safety management systems. However, those are for the APF as the self-administering organisation rather than the individual operator or club. It is not clear how the APF will regulate the individual operator under the new regime. Neither is it clear that the APF has the capacity to oversight all parts of the operation. To be assured of the responses of CASA and the APF to its recommendation the ATSB required more details of the specific requirements for operators under the new arrangements.

[30] Exhibit E6, p 18
[31] Exhibit E6, p 15
[32] Consultation of these proposals closed in September 2019.
[33] T5 - p57

163. Submissions from CASA noted that issues relating to the regulation of skydiving must be addressed within applicable constraints such as reasonable risk assessment and safety expectations, responsible resource allocation and reasonable government priorities. CASA also reiterated that it is not the purpose of auditing (by CASA or the APF) to conduct proficiency testing of pilots. This is done when the pilot is issued with a Jump Pilot Authorisation (and ongoing by its annual revalidation) under Part 61 of the CASR.

Jump pilot maintenance

164. Regulation 42ZC of the *Civil Aviation Regulations 1988* (CAR) authorises a pilot to conduct the replacement of seats, but only if the replacement does not involve disassembly of any part of the primary structure of the aircraft.

165. Upon completion of maintenance, the pilot or Part 66 licence holder as applicable, is responsible as the person performing that maintenance to record all relevant details and make the appropriate certifications, as required by Regulation 42ZE of the CAR, in the aircraft's log book or, if appropriate, on the maintenance release.

166. An issue that was raised for consideration in the course of the inquest was whether Mr Aitken or some other pilot had removed the pilot seat from FRT for some reason on or before the day of the accident. If a pilot had done so, the seat needed to be properly re-installed with the seat stops properly re-fitted.

167. Unfortunately, attempts to seek evidence from the pilot who had flown FRT on Friday 21 March 2014, the day before the accident, were not successful. Although no evidence emerged of an occasion on which Mr Aitken removed the pilot seat from FRT, there was also no evidence in any available maintenance release or other document that any pilot had recorded or reported missing seat stops.

168. The Daily Inspection Schedule under the CASA Maintenance Schedule (referred to in CAAP 42B-1) does not reference, as an item of daily inspection by a pilot, seats, seat adjustment mechanisms or seat stops. Those items are picked up as items of periodic inspection under the CASA Maintenance Schedule that is usually the responsibility of a LAME.

169. The APF Jump Pilot Manual in force in 2014 (and currently) refers Jump Pilots to a CASA Advisory Publication (CAAP 42ZC-1) in identifying permissible pilot maintenance. While this publication refers to 'replacement' of seats, it is not clear that the permitted maintenance envisaged under this provision extends to the temporary 'removal' of a pilot seat, and its subsequent reinstallation into an aircraft, and whether that activity is required to be noted on a maintenance release or log book.

170. CAAP 42ZC (clause 2.1.8) appears to leave it to the person performing the maintenance to decide whether the regulations (CAR 42ZE) require any "relevant details" to be recorded "in the aircraft's logbook or, if appropriate, on the maintenance release".

171. CAR 248 requires that at the termination of each flight, the pilot in command must report, "in the manner and to the persons specified by CASA", all defects in the aircraft that have come to the pilot's notice. The usual way of "reporting" such defects is for the pilot to make an entry that describes the defect in Part 2 (endorsements) of the current maintenance release for the aircraft.

172. Again, there is no evidence that APF auditors are qualified to assess whether particular tasks that are permitted under Schedule 8 of the CARs to be performed by jump pilots should be recorded by a pilot in a way contemplated by the CAAP, or whether a particular deficiency (such as a missing seat stop) should be treated as a "defect" for the purpose of CAR 248 and "reported" by way of an entry on a maintenance release by a jump pilot who becomes "aware" of the defect.

173. Mr Creed's evidence is that when he observed that the pilot seat of FRT was off its rails and took steps to rectify the problem, he completely removed the seat because "you've actually got to take a seat right out to put it back in properly". On that occasion, Mr Creed did not fit the seat stops on the rails because they were missing. It is apparent that Mr Creed did not make a record (or advise Mr Aitken to make an entry or note) of this in any aircraft log or maintenance release, and it is highly unlikely that the pilot made any report of the missing seat stops.

174. There is no evidence that Mr Aitken had any training in, or otherwise gained sufficient knowledge of, the method of performing the task of seat replacement that Mr Creed undertook on the weekend before the accident. It was Mr Creed's evidence that it was "very obvious" that Mr Aitken did not know how to put the seat back on its rails because he had been operating with the seat dislodged from its rails prior to Mr Creed showing him how to refit the seat.

175. Counsel assisting submitted that a serious question may be asked: if it is the practice of APF Club members to allow pilots to attend to pilot maintenance tasks without recording those tasks, what responsibility should the APF take where preparatory pilot (or other on-field) maintenance is not duly or correctly performed and properly recorded? Mr McCooey's evidence was instructive:

> *(A)s to this matter, the Civil Aviation Aeronautical Publication 42ZC-1 outlines the types of maintenance a pilot may perform on an aircraft. That is a matter within the administrative purview of CASA. The APF does not specifically audit compliance with the various requirements under the publication.*
>
> *…….*

Moreover, it is impracticable to audit any such maintenance because any such maintenance is likely to have been carried out before an audit.

176. However, as Mr Stanton confirmed, CASA's view is that the responsibility of the APF is the parachuting operation in its entirety. This suggests that CASA on the one hand and the APF on the other have a different understanding of the role and responsibility of each organisation in respect of the oversight and regulatory supervision of the overall or "entire" operations of a skydiving business. As such, there seems to be a risk that accidents will occur because of gaps in the system of regulatory oversight and administration of the "airlift component" of skydive operations.

177. CASA submitted that it was not aware that it was the practice of APF Club members to allow pilots to attend to pilot maintenance tasks without recording those tasks. I agree that the practices of Skydive Bribie should not be construed as indicative of an industry wide problem. Such practices would be illegal and contrary to the provisions of the APF Jump Pilot Manual.

178. CASA also submitted that it was not the role of an APF auditor to physically review maintenance work undertaken by a pilot. It submitted that the evidence indicated that the APF's audit activities are directed to compliance with legislative requirements relevant to both the operation and the maintenance of aircraft.

179. I accept counsel assisting's submission that there is no assurance in the evidence given by Mr McCooey that APF auditors are capable of playing an effective role in auditing the performance of Schedule 8 tasks by jump pilots, or that the APF has any capacity to 'ramp check' an aircraft and/or review an aircraft maintenance release or log book to see if missing components – such as seat stops – are recorded by a jump pilot as "defects" that require immediate rectification.

180. I also accept that there was no comfort to be drawn from the evidence of the CASA witnesses or Mr McCooey that the "particular level of oversight of the airlift component" of tandem skydiving activities, that CASA expects the APF to "administer", is adequate or effective in ensuring the safety of novice parachutists who plainly have no capacity to assess the risks involved in that "component".

The secondary seat stop issue

181. There is insufficient evidence to find that Mr Turner rejected the installation of an inertia reel in FRT in or about 2011 or at any time prior to the crash.

182. Mr Turner's evidence was that at some point in time after the 100-hourly inspection of FRT in August 2013, he had a conversation with Ian Colville of Ian Aviation about the installation of a secondary seat stop inertia reel in FRT.

183. Mr Turner was unaware that two years earlier Ian Aviation had specifically ordered the supply of that product for FRT from Cessna through a local supplier, Airflite Pty Ltd, and had issued a loose leaf logbook entry certifying the completion of the installation of the product in FRT on 30 October 2011. Mr Turner was unaware that Airflite had processed a warranty claim on 21 November 2011 and issued payment (of $856 USD) to Ian Aviation for the purported installation in FRT under the Cessna extended warranty program then in place.[34]

184. The evidence indicates that on 11 November 2013 Ian Aviation placed an order for an "additional" secondary seat stop through Aeromil Pacific which was intended for installation in FRT. The timing of that order accords with Mr Turner's recollection that he asked Ian Aviation, in late 2013, to install the kit into his aircraft and expected that would be done at the next 100 hourly service of the aircraft. The last service of the aircraft by Ian Aviation occurred on 12 February 2014 but the ordered seat stop had not arrived.

185. The available evidence is that the product arrived in Australia and was delivered to Aeromil Pacific on 8 April 2014 and was provided to Ian Aviation who installed the product in another Cessna aircraft, VH-WTO, on 29 April 2014, after FRT had crashed.[35]

186. At the inquest, Mr Colville said that in 2011 Ian Aviation ordered secondary seat stop kits for all of the Cessna aircraft that they were maintaining, including FRT. He said that "for us there was a benefit because, depending on the aircraft model, there's four to six man hours to install it and Cessna paid us to actually install those kits".

187. Mr Colville said that at that time, Mr Turner indicated that he did not want the product as it would add weight to his aircraft. When the product intended for FRT arrived in late 2011, Ian Aviation installed it in another aircraft, VH-PQN.[36] In respect of the placement of an order for the kit, again for FRT, in late 2013, Mr Colville could not recall whether it was ordered at the request of Mr Turner or not.

188. Mr Colville accepted that the logbook entry recording the installation of the secondary seat stop in FRT on 30 October 2011 was false. He also accepted that in making a claim through Airflite as part of the Cessna extended warranty scheme, he made a false representation to Airflite for the purposes of obtaining the reimbursement from Cessna.

189. Although it may have been the original intention of Mr Colville and Ian Aviation to install the product in FRT in 2011, there is no rational

---

[34] Exhibit J 11 31

[35] Exhibit J 1.2

[36] Exhibit J11.6, it is not clear that an invoice separately issued for this work and it possible that it was installed in another aircraft.

explanation for the falsification of a maintenance document if the aircraft into which the product was in fact installed was also eligible under the extended warranty scheme to receive the product, and if Ian Aviation was entitled to claim payment for the installation of it in VH-PQN.

190. Mr Colville gave the following explanation for signing the logbook entry on 30 October 2011:

> *I'm not sure whether it was – I signed it before or after the decision not to install it.*
> But you've signed it on – dated the 30th of October 2011? *Yes, that's correct.*
> And you know that on that day it hadn't been installed? *That – that would be correct.*
> So what do you say? You say that you've signed it in anticipation that it might be installed into FRT? *That's correct.*
> If it might be installed in FRT, that would be contrary to what you say Mr Turner told you, that he didn't want it installed in FRT, wouldn't it? *Well, I – I ordered it before I asked him whether he wanted it – wanted it installed. Because what I did was every Cessna aircraft that we were maintaining, I assumed that all the owners would – would want – want the kit. So – so – but he – he declined the offer when I offered him the kit.*

191. Mr Turner repeatedly denied that he declined any "offer" from Ian Aviation in 2011 to install the secondary seat stop kit. He has no recollection of any conversation about the product with anyone from Ian Aviation in 2011. His evidence is that he only raised the subject with Ian Aviation in late 2013 following discussions with a skydiving colleague, Ian McGregor, who had taken steps to obtain the inertia reel.

192. FRT was at Ian Aviation at Archerfield on 15 February 2012, for a periodic inspection. This is self-evidently not a date in 2011 when Mr Colville said the rejection occurred. It is also a date after the very inertia reel said to be allocated to it had been installed in PQN. Put simply, there was nothing for Mr Turner to reject in February 2012.

193. Mr Colville's evidence that he signed the false logbook entry on 30 October 2011 "in anticipation that it might be installed into FRT" lacked plausibility. Although VH-PQN was an aircraft on Ian Aviation's priority list of aircraft to receive the secondary seat stop it did not have the product installed until 30 November 2011.[37]

194. In addition, Mr Colville's evidence that Mr Turner had initially rejected the "offer" of the product from Ian Aviation in 2011, because the product would add 1 kg to the weight of the aircraft, also lacks plausibility when it appears that Mr Colville acknowledges that an order for the kit, for FRT, was placed in late 2013, when Mr Turner may have requested it without any suggestion that the weight of the product was, then, an issue for Mr Turner.

195. I accept the submission from Textron that the records fabricated by Mr Colville (an experienced aviation engineer who was no stranger to the

[37] Transcript 28/09/2018, pp34 –35

fundamental importance of maintaining accurate log books for the aircraft he serviced) misled Textron into recording and believing that a secondary seat stop was installed in FRT on 30 October 2011, and that it remained fitted to the aircraft at the time of the incident. This fabrication also caused Textron to issue a payment to Ian Aviation for labour never performed on FRT.

196. Mr Turner submitted that although uncommanded rearward movement of the pilot's seat remained a possible cause of the crash, the evidence is not sufficiently strong or persuasive to find it a probable cause. He also submitted that the installation of an inertia reel in an aircraft is not foolproof. It may not function correctly if the seat was not on the rails and was instead on the floor, as identified by Mr Creed at Raglan the week before the crash.

197. While Mr Turner submitted that the evidence was not sufficient to permit a conclusion that the installation of an inertia reel would have prevented the crash, it does remain a possibility.

198. The implication of the evidence given by Mr Colville is that if the secondary seat stop that was ordered and obtained for FRT in 2011 had been installed in that aircraft at that time, the inertia reel system is likely to have been effective to prevent an uncommanded rear slide of the pilot seat on 22 March 2014, assuming it had been properly connected to the seat.

CASA/APF responses to ATSB recommendations

199. In its final report, the ATSB made a number of safety recommendations directed to CASA and the APF. One of the main recommendations was for CASA to take action to "*strengthen incorporation of Cessna Single Engine Service Bulletin SEB07-5 Secondary seat stop modification*". This recommendation falls short of recommending that CASA take action to require the secondary seat stop inertia reel system to be installed in all Cessna aircraft used for carrying passengers or other 'participants' in aviation sporting activities.

200. CASA's position is that the mandating of the inertia reel installation cannot be achieved by an airworthiness directive since there is no safety of flight or unsafe condition that would justify that regulatory mechanism. Three layers of safety 'defences' or mechanism are already in place - the primary seat locking system, the primary seat stops and the 100 hourly inspection regimes.

201. CASA issued AWB 25-032 (23 April 2018) to "reinforce the message for all Cessna operators and maintainers of the importance of meticulous inspection plus timely maintenance to ensure pilot seats, adjustment mechanisms and seat track locking mechanisms are secured correctly to prevent inadvertent seat movement particularly during critical phases of flight".

202. I accept counsel assisting's submission that there is a strange inconsistency between the aircraft manufacturer taking steps to 'mandate' the installation of a safety product (at full cost to the manufacturer) and regulatory bodies (both in Australia and in the USA) taking the view that existing mechanisms (which have been shown to fail) are satisfactory such that installation of a further safety mechanism is not necessary.

203. Counsel assisting noted that in the context of the devolution of self-administration of the 'entirety' of responsibility for skydiving activities to the APF it would be open to the APF (with CASA approval as may be necessary) to require its club members using Cessna 206 type aircraft to only use such aircraft as jump aircraft for tandem parachute activities where the aircraft have a secondary seat stop mechanism installed. This was supported by the ATSB.

204. The ATSB report also contained a recommendation directed at CASA and the APF in relation to the use of dual point restraints.

> *The ATSB recommends that the Civil Aviation Safety Authority, in conjunction with the Australian Parachute Federation, takes action to increase the usage of dual-point restraints in parachuting aircraft that are configured for rear facing occupants.*

205. In this inquest, it was clear that the question of the type of restraint fitted on FRT did not directly impact upon the manner and cause of death of the

deceased. The recommendations of the ATSB are relevant to the wider issues that the ATSB has canvassed in its report.

206. In respect of the safety issue concerning unapproved flight control modifications, the ATSB has noted (and accepted) CASA's response to this issue by its publication of an airworthiness bulletin (AWB 02-054) on 22 January 2016 by which owners, operators and maintainers of aircraft are advised to check that all modifications to flight controls, structures and systems have been undertaken in accordance with applicable, approved maintenance data and that each modification has been duly recorded in relevant technical logs or other maintenance records.

207. Given that the evidence available to the ATSB and at inquest was insufficient to determine which maintenance organisation or person was responsible for the work undertaken to reconnect and subsequently disconnect the co-pilot control column of FRT on one occasion (if that in fact occurred), the issue of a published AWB dealing more 'globally' with the safety issue would seem to be a reasonable response by CASA. I also note that the APF took steps in 2016 to ensure that club members are aware of the AWB and this action was viewed by the ATSB as acceptable.

208. The issue concerning unapproved flight control modifications highlights the need for CASA to maintain an active role in relation to airworthiness control and the oversight of aircraft maintenance that involves modifications to a range of aircraft structures and systems, including aircraft configured for use in parachuting operations, which may occasionally be used for other purposes.

209. I note the advent of CASR Part 149 and the suite of proposed regulations relating to general operating and flight rules (CASR Part 91) and parachuting from aircraft (Part 105) are intended to clarify and provide a more robust regulatory basis for the conduct of parachuting activities under the scheme of self-administration presently maintained by CASA. The recommendations of the ATSB that CASA introduces appropriate "risk control" measures in respect of parachuting operations that provide "increased assurance of aircraft serviceability, pilot competence and adequate regulatory oversight" are supported.

210. Mr Stanton in evidence, and CASA in its submissions, gave assurances that CASA would embrace those ATSB recommendations in the rollout of the new system. Those assurances were subject to the caveat that the clear policy position of the Commonwealth Government was that parachuting operations will not be regulated in the same way or to the same extent as commercial charter operations.

211. Notwithstanding these assurances, the legislated measures require CASA and the APF to give urgent attention to ensuring a common understanding of the regulatory role of CASA in relation to the 'airlift component' of parachuting operations and the limitations of the APF to truly undertake effective surveillance or auditing of that component.

212. If CASA is to maintain the fiction that tandem parachutists are not to be viewed as passengers in a commercial air operation during the airlift component of a parachute sortie, because they are not seated in a conventional seat on an aircraft (with the consequence that the entirety of the operation is to be viewed as 'private') it is imperative that CASA ensures that the risks of rejecting the AOC system are minimised to the greatest extent possible.

213. Strengthening the test for accreditation as a "fit and proper person" and putting in place training and checking systems, pilot supervision under a clear 'chain of command', operations manuals, safety management systems that provide for pilot-to-pilot consultation on air safety matters and regular compliance checks are arguably appropriate for all air transport operations, including the airlift component of adventure aviation activities.

Recommendations

214. Section 46 of the *Coroners Act 2003* provides that a coroner may comment on anything connected with a death that relates to public health or safety, the administration of justice or ways to prevent deaths from happening in similar circumstances in the future. I make the following recommendations:

Recommendation 1

I recommend that the APF revise its policies and procedures for the assessment of whether candidates for and holders of the position of Chief Instructor and others in control of parachuting organisations are 'fit and proper persons' and of 'good repute'.

Recommendation 2

I recommend that the APF require club members using Cessna 206 type aircraft or any similar aircraft with pilot seats that slide on rails to only use such aircraft as jump aircraft for tandem parachute activities where the aircraft has a secondary seat stop mechanism installed.

Recommendation 3

I recommend a thorough review of the requirements of the CASA-approved APF Jump Pilot Manual, and its suitability for providing appropriate risk-based standards for all air operations conducted by APF club members.

Recommendation 4

I recommend that CASA and the APF review the implications for public safety of low-time or part-time jump pilots flying sorties in aircraft owned by APF club members and organisations not controlled by persons with

the background and experience of an AOC operator. Issues that should receive particular attention include:

(a) the level of training that jump pilots should be receiving and the introduction of specified and appropriately rigorous standards that would apply to jump pilots conducting flights transporting tandem parachutists to the point of departure from the aircraft;

(b) The need for more regular proficiency checks of jump pilots with a qualified examiner, in accordance with a checking syllabus approved by CASA where the syllabus would focus on matters germane to the airlift component of flights carrying tandem parachutists;

(c) The creation of a new operational rating or endorsement with special attention to moulding or expanding the application of the general competency rule contained in regulation 61.385 of the CASR to jump pilots to ensure a far higher standard of airmanship by jump pilots than is presently required; and

(d) Surveillance of the 'airlift component' of parachuting operations by CASA flying operations inspectors on a regular or systematic basis accompanied, where resources permit, by area safety officers of the APF.

Section 48 referral

215. Section 48(4) of the Coroners Act 2003 provides that a coroner may give information obtained while investigating a death to a disciplinary body for a person's profession or trade if the coroner reasonably believes the information might cause the body to inquire into, or take steps in relation to, the conduct of the person.

216. The evidence in relation to the conduct of the approved maintenance organisation Ian Aviation, in relation to the placement of orders by it for the installation of secondary seat stops in Cessna aircraft, gives rise to a question of the need for further investigation of that conduct.

217. I am satisfied that the evidence in question might cause CASA, as the body responsible for approving a person to engage in the profession or trade of maintaining aircraft or aircraft components (under regulation 30 of the *Civil Aviation Regulations*) to inquire into, or take steps in relation to, the conduct of Ian Aviation. A referral will be made under s 48(4) of the *Coroners Act 2003* to enable a review of those facts and circumstances and for CASA to determine whether further action should be taken.

218. I close the inquest.

Terry Ryan
State Coroner
Brisbane
10 March 2020