IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court refs: COR 2017 0872
COR 2017 0873
COR 2017 0874
COR 2017 0875
COR 2017 0876

FINDING INTO DEATHS AFTER HAVING HELD AN INQUEST

Form 37 Rule 60(1)
Section 67 of the Coroners Act 2008

Deceased:	**MAXWELL QUARTERMAIN** (COR 2017 0872) **GREG DE HAVEN** (COR 2017 0873) **GLENN GARLAND** (COR 2017 0874) **JOHN WASHBURN** (COR 2017 0875) **RUSSELL MUNSCH** (COR 2017 0876)
Findings of:	**CORONER DARREN J. BRACKEN**
Delivered on:	30 September 2022
Delivered at:	Coroners Court of Victoria Kavanagh Street, Southbank
Hearing date:	21 to 23 September 2021 with further evidence and submissions reviewed after the hearing.
Appearances:	Mr C McDermott of counsel appeared on behalf of the Civil Aviation Safety Authority ("**CASA**"). Mr P Hornby, solicitor, appeared on behalf of the Australian Transport Safety Bureau ("**ATSB**").

Mr P Lithgow of counsel appeared on behalf of MyJet Aviation.

Mr L Magowan of counsel appeared to assist the Coroner.

Key Words: ‘Air-crash’, ‘Civil Aviation Safety Authority’, ‘Australian Transport Safety Bureau’, ’Essendon Airport’, ‘Checklist’, ‘Beechcraft King Air B200’.

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INTRODUCTION

1. At about 8.59am, on 21 February 2017, Beechcraft King Air B200, VH-ZCR ("the Aircraft") took off from runway 17 at Essendon Airport ("the Airport"). The pilot, Mr Maxwell Quartermain, had four passengers on board, Messrs Greg De Haven, Glenn Garland, John Washburn and Russell Munsch. The weather was fine, it was 12 degrees and the wind, at 5 knots, was from the north-north-west. The aircraft was to turn right when airborne to a heading of 200 degrees and was bound for King Island.

2. Witnesses saw the Aircraft taxi down the runway, take off and yaw to its left performing a shallow climbing left turn with the landing gear remaining down.[1] Things happened quickly. The aircraft reached a maximum height of 160 feet, side slipped to the left and began to descend. Mr Quartermain transmitted "…*Mayday…*"[2] and two seconds after the transmission concluded, ten seconds after the Aircraft became airborne, it collided with the roof of the Retail Outlet Centre bordering the Airport and came to rest in an adjacent carpark erupting in flames ("the Accident"). The Aircraft was substantially destroyed and Mr Quartermain and his passengers all died.

3. Victoria Police nominated Detective Senior Constable Skahill as the Coronial Investigator. Detective Senior Constable Skahill assembled and submitted the Inquest Brief. I have read all the material in the Inquest Brief, the transcript of evidence from the Inquest and the submissions made by interested parties. This Finding only refers to the material upon which I rely to draw conclusions and make findings.

A.1. Reportable Death and the Purpose of a Coronial Investigation

4. Each of the deaths of Mr Quartermain and his passengers was a 'reportable death' pursuant to section 4 *Coroners Act* (2008) ("the Act"). The Act requires a Coroner investigating such deaths to find, if possible:

   (a) The identity of the deceased.

[1] There is evidence referred to later in this Finding that the Aircraft deviated to the left of the centre of the runway before it became airborne at least suggesting that the rudder trim tab was at 'full nose-left' before the aircraft became airborne.
[2] Seven times.

(b) The cause of the death and

(c) The circumstances in which the death occurred.[3]

5. For the purposes of the Act, "*circumstances in which the death occurred*" refers to the context and background of the death. Making findings dealing with the circumstances does not require a consideration of all the circumstances which might form part of a narrative culminating in a death but is limited to the circumstances that are proximate to the death.

6. The Coroner's role is to find facts and not to attribute or apportion blame, or to determine criminal or civil liability.[4]

7. One of the broader purposes of coronial investigations is to reduce the number of preventable deaths in the community and to that end a coroner may;

(a) report to the Attorney-General on a death,

(b) comment on any matter connected with the death including matters of public health or safety and the administration of justice[5] and

(c) make recommendations to any minister or public statutory authority on any matter connected with the death, including public health or safety or the administration of justice.[6]

8. The strength of evidence necessary to so prove facts varies according to the nature of the facts and the circumstances in which they are sought to be proved.[7] Proof of facts underpinning a finding that would, or may, have an extremely deleterious effect on a party's character, reputation or employment prospects demands a weight of evidence commensurate with the gravity of the finding, and its effect.[8]

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[3] *Coroners Act* (2008) s. 67. Unless otherwise stated all reference to sections of legislation are references to sections in this act.
[4] S. 69(1).
[5] *Thales Australia Limited v The Coroners Court or Victoria & Ors.* [2011] VSC 133.
[6] Ss. 72(1), 67(3) and 72(2) respectively.
[7] Qantas Airways Limited v Gama (2008) 167 FCR 537 at [139] per Branson J but bear in mind His Honour was referring to the correct approach to the standard of proof in a civil proceeding in a federal court with reference to section 140 of the Evidence Act 1995 (Cth); Neat Holdings Pty Ltd. Karajan Holdings Pty Ltd (1992) 67 ALJR 170 at pl 70- 171 per Mason CJ, Brennan, Deane and Gaudron JJ
[8] Anderson v Blashki [1993] 2 VR 89, following Briginshaw v Briginshaw (1938) 60 CLR 336, referring to Barten v Williams (1978) 20 ACTR 10; Cuming Smith & Co Ltd v Western Farmers Co-operative Ltd [1979] VR 129; Mahon v Air New Zealand Ltd [1984] AC 808 and Annetts v McCann (1990) 170 CLR 596

9. Facts should not be considered to have been proved on the balance of probabilities by inexact proofs, indefinite testimony, or indirect inferences,[9] rather such proof should be the result of clear, cogent or strict proof in the context of a presumption of innocence.[10] Such a qualification should, of course, be interpreted in the context of the coronial jurisdiction being inquisitorial and having nothing to do with guilt or innocence.

10. Many of the facts surrounding the Accident and the deaths of these five men are uncontroversial including the brief description of the Accident above. At the commencement of the Inquest Mr McGowan, counsel assisting me, read a precis of the evidence contained in the Inquest Brief, the contents of which were agreed by interested parties to be accurate including detail setting out Aircraft's movement from when it took off until it crashed, 'The Agreed Statement of Facts'.

A.2. Identity of the Deceased & Cause of Deaths

11. On 23 February 2017 at the Victorian Institute of Forensic Medicine the pilot of the Aircraft was identified as Maxwell Charles Quartermain born 18 November 1949.

12. On 27 February Mr Quartermain's passengers were identified as Greg Reynolds De Haven born 25 July 1946, Glenn Alan Garland born 15 December 1956, John Washburn born 6 October 1949 and Russell Langford Munsch born 22 February 1955.

13. On 22 February 2017, Dr. M. J. Dodd, a specialist forensic pathologist practising at the Victorian Institute of Forensic Medicine, performed autopsies on the bodies of;

    (a) Mr Greg DeHaven,

    (b) Mr Glenn Garland,

    (c) Mr John Washburn and

    (d) Mr Russell Munsch.

[9] Briginshaw v Briginshaw (1938) 60 CLR 336, at pp. 362-3 per Dixon J
[10] Briginshaw v Briginshaw (1938) 60 CLR 336, at pp. 362-3 per Dixon J.; Cuming Smith & CO Ltd v Western Farmers Co-operative Ltd [1979] VR 129, at p. 147; Neat Holdings Pty Ltd v Karajan Holdings Pty Ltd (1992) 67 ALJR 170 at pl 70-171 per Mason CJ, Brennan, Deane and Gaudron JJ.

In his resultant separate reports Dr Dodd opined that each of Mr DeHaven, Mr Garland, Mr Washburn and Mr Munsch died as a result of "*Multiple injuries (air crash-passenger).*".

14. On 23 February 2017, Dr. G. Young, a specialist forensic pathologist practising at the Victorian Institute of Forensic Medicine, performed an autopsy on the body of Mr Quartermain. In his resultant report Dr Young opined that the cause of Mr Quartermain's death was "*Multiple injuries sustained in an air crash (pilot).*".

15. Because the deaths of Messrs Quartermain, De Haven, Garland, Washburn and Munsch all arose from the same set of facts I determined to hold one inquest into all their deaths.[11]

16. I conducted an inquest into these deaths over 12 days between 13 April 2021 and 23 September 2022.

17. At the Inquest witnesses gave evidence in chief by adopting their written statements prepared for the Inquest. Some also gave *viva voce* evidence and were cross examined. On 23 September 2021 Mrs Quartermain notified the Court that she would prefer not to give *viva voce* evidence and I excused her. Mrs Quartermain later provided a second written statement dated 28 October 2021. Further, Mr Medway also provided information to the Court and later a second written statement; he did not give *viva voce* evidence. I deal with the supplementary material supplied by Mrs Quartermain and Mr Medway later in this Finding.

18. The evidence was given during a period of Covid-19 restrictions in a number of jurisdictions, including Victoria (where the Inquest was held) and the Northern Territory (from where Mr Nishizawa gave his evidence). All of the evidence was given electronically which should, in part, explain some of the somewhat disjoined nature of the transcript.

B. OCCURRENCE OF THE ACCIDENT

B.1. Chronology[12]

19. On 20 February 2017:

[11] Sections. 54, 62(1) *Coroners Act* (2008).
[12] As set-out in the ATSB Report Appendix 10 to the Inquest Brief pp.821-873.

(a) The Aircraft was towed out of a hanger and parked on the tarmac.

(b) At 11.56pm, Mr Quartermain accessed the National Aeronautical Information Processing System ("NAIPS") from which he could obtain a weather report.

20. On 21 February 2017:

(a) At approximately 4.56am, Mr Quartermain again checked NAIPS and the Notice to Air Missions service ("NOTAM"),[13] for information in relation to Essendon, King Island, Launceston, and Devonport, Tasmania. Mr Quartermain left home shortly after for the Airport.

(b) At approximately at 7.12am CCTV footage from cameras at the Airport show Mr Quartermain walking around the Aircraft for approximately 4 minutes consistent with him conducting a 'pre-flight check'. Mr Quartermain entered the cabin of the Aircraft, exited and further walked around the Aircraft. Mr Quartermain can be seen briefly speaking to Mr Pantlin.[14] Mr Quartermain re-entered the Aircraft, closed the air stair cabin door and at about 7.29am, the right engine was started and, shortly after, the left engine.

(c) At approximately 7.36am CCTV footage recorded Mr Quartermain moving the Aircraft to the southern end of the passenger terminal and at approximately 7.59am the Aircraft was refuelled.

(d) At approximately 8.28am Mr Quartermain spoke to his wife by telephone telling her that he was awaiting the arrival of his passengers.

(e) At approximately 8.30am Mr Quartermain's four passengers were picked up from their city hotel to be taken to the Airport.[15]

(f) At approximately 8.43am Mr Quartermain's passengers' luggage was loaded and they boarded the Aircraft. Mr Quartermain requested taxi clearance for King Island from the Airport Air Traffic Control ("ATC"), was instructed to taxi to holding point "*TANGO, runway 17*" and provided an airways clearance

[13] A service that provides flight and destination information including weather information.
[14] Mr Pantlin is a licensed aircraft mechanic employed by Interair Pty. Ltd to maintain the Aircraft.
[15] Recorded on Hyatt Hotel CCTV. There is no sign of any delay or difficulty in relation to Mr Quartermain's passengers' transport to Essendon Airport.

for the Aircraft to King Island with a visual departure. Mr Quartermain read back the clearance.

(g) Commencing at approximately 8.54am the Aircraft taxied to the holding point and stopped, awaiting further instructions before take-off.

(h) At approximately 8.58am, ATC cleared the Aircraft for take-off on runway 17 with departure instructions to turn right onto a heading of 200°. Mr Quartermain read back the instructions and the Aircraft commenced its 'take-off roll'. Shortly there-after (after a longer 'take-off roll' than was expected by some witnesses and the aircraft tracking to the left of the centre-line of the runway) the Aircraft became airborne and yawed to its left.

(i) The Aircraft began a relatively shallow climb and the landing gear remained down. The shallow climb was followed by a substantial left sideslip, while maintaining a roll attitude of less than 10° to the left. ADSB (Automatic Dependent Surveillance Broadcast)[16] data indicated the Aircraft reached a maximum altitude of approximately 160 feet while tracking in an arc to the left of the runway centreline.

(j) The Aircraft began to descend and at 8.58am Mr Quartermain transmitted 'MAYDAY' on the Essendon Tower frequency seven times in rapid succession. At this time, the Aircraft's airspeed was decreasing, and its track left was increasing in rate.

(k) Approximately 10 seconds after the aircraft became airborne, and 2 seconds after the 'MAYDAY" transmission concluded the Aircraft collided with the roof of a building in the Retail Outlet Centre and came to rest in a loading area at the rear of the building in flames.

B.2. Other Factors

21. The Australian Transport Safety Bureau compiled a report in relation to the Accident ("the ATSB Report") which refers to the weight of Aircraft being about 240 kg above the Aircraft's maximum take-off weight of 5,670 kg. There is no evidence of the

[16] Position broadcast data transmitted by Aircraft.

passengers and their baggage being weighed before loading and embarking. Neither is there evidence of the weight of the Aircraft being a cause of the Accident.

22. The take-off and accident were observed by a number of witnesses including Mr Mark Holbrook, Mr David Sammut, Mr Roland McMillan and Mr Justin Helman whose evidence coincides broadly with the description of events that I set out above.

23. Post-accident analysis of ADSB Data in the ATSB Report refers to the Aircraft having:

(a) Performed a rolling take-off after turning onto runway 17 from holding point TANGO.

(b) Reached the 'rotation speed' of 94 kts about 730 metres from the threshold of the runway.

(c) Rotated and become airborne about 1,015 metres from the threshold of the runway 17 at about 111 kts. The Aircraft's rotation point was confirmed using Airport CCTV footage.

(d) Begun to deviate to the left of the runway centre-line between ADS-B data points A and B.[17]

(e) An initial rate of climb of about 1,100 ± 200 feet per minute.[18]

(f) Stopped accelerating about 5 seconds after becoming airborne after reaching a maximum speed of 116 kts.

24. The Aircraft was fitted with a cockpit voice recorder ("CVR") that was not operating on 20 February 2017. The ATSB Report concludes that it was likely that it had been inadvertently switched off prior to 21 January and not turned back on by Mr Quartermain.

> "*ZCR was fitted with a Fairchild model A100S CVR in June 1996, at about the time the aircraft entered service. The fire-damaged CVR was removed from the wreckage and transported to the ATSB's technical facilities in Canberra for examination. The CVR was successfully downloaded, however, no audio from the accident flight*

[17] Figures 11 & 12 ATSB Report. The rate of deviation increased as the flight progressed.
[18] The rate of change in ADS-B pressure altitude data – ATSB Report Appendix 10 to the Inquest Brief pp. 821-873.

was recorded. The recovered audio related to a previous flight on 3 January 2017. This recording began at the expected time prior to engine start. The recording stopped, however, at about the time the aircraft landed at the arrival aerodrome. The post-landing taxi and engine shutdowns were not recorded. It was likely that the 'impact switch' was activated during the landing and power was removed from the CVR."

C. THE DECEASED

C.1. Maxwell Quartermain

25. Mr Quartermain was born on 18 November 1949, grew up in Balwyn and attended Boroondara Primary School. He completed his secondary education at Camberwell Grammar. On leaving school Mr Quartermain tried various forms of employment before taking over the family business as a County Court Bailiff in 1977. In 1972, he married Ms Lynda Goldby and had two children, Melissa and Michael. Mr Quartermain and Ms Goldby separated and Mr Quartermain married Ms Sue Reynolds; they were married for approximately 17 years before separating and in 2002, Mr Quartermain married his current wife, Mrs Priscilla Quartermain.

C.2. Greg De Haven

26. Mr De Haven was born on 25 July 1946, in California, United States of America (USA). He was married to Rosemary De Haven for approximately 12 years. He had three children, Chad De Haven, Tracey Sartino and Bryan De Haven, from a previous relationship.

27. Mr De Haven and his wife had been planning the trip to Australia since May – June 2015. They departed Texas on 1 February 2017 and arrived in Queenstown, New Zealand on 3 February 2017. Mr & Mrs De Haven travelled around New Zealand until 18 February 2017 and then travelled on to Melbourne.[19]

C.3. Glenn Garland

28. Mr Garland was born on 15 December 1956, in South Carolina, USA. He married Ms Laurie Garland in 2008. Mr Garland had two sons, Matthew and Austin from a previous relationship. He also had two step sons, Brett and Jeffrey. Mr Garland

[19] Statement of Rosemary De Haven, pp. 36-38 Inquest Brief.

retired as CEO of "CLEAResult" an energy efficiency consulting company in August 2016. On 3 February 2017, Mr Garland and his wife arrived in Queenstown, New Zealand. They remained there until 18 February 2017 and then travelled on to Melbourne.[20]

C.4. John Washburn

29. Mr Washburn was born on 6 October 1949, in Iowa, USA. He was married to Denni Washburn in 1972. Together they had two children, John and Davis. Mr Washburn was a retired attorney. The couple planned the trip to Australia and New Zealand and his wife arrived in New Zealand on 1 February 2017 and remained there until 18 February 2017 and then travelled on to Melbourne.[21]

C.5. Russell Munsch

30. Mr Munsch was born on 22 February 1955. He was married to Sheri Munsch and together they had one daughter, Rachel. On 3 February 2017, Mr Munsch and his wife arrived in Queenstown, New Zealand. They remained there until 18 February 2017 and then travelled on to Melbourne.[22]

D. THE AIRCRAFT AND ITS MAINTENANCE

31. The Aircraft, a Beechcraft B200, bore the manufacturer's serial number BB-1544 and was imported to Australia at some time prior to 9 October 2014 upon which date it was assigned Australian registration mark VH-ZCR and listed on the Australian Civil Aircraft Register.

32. The Aircraft was owned by BB1544 Pty. Ltd., the sole director of which was Mr Christopher Richard. Mr Richard was also a director of MyJet Aviation Pty. Ltd., a company that provided management services to the Aircraft's owner. Mr Richards provided a written statement for the Inquest Brief dated 3 March 2017.[23]

33. On 27 October 2016, Interair Pty. Ltd. ("Interair") serviced the Aircraft and on 16 December 2016, the Aircraft underwent further maintenance.

[20] Statement of Laurie Garland, pp. 39-41 Inquest Brief.
[21] Statement of Ms Denni Washburn, pp. 42-44 Inquest Brief.
[22] Statement of Ms Sheri Munsch, pp 45-46 Inquest Brief.
[23] Statement of Mr Chris Richards, dated 2 March 2017 pp.71-75 Inquest Brief

34. There was no evidence of the Aircraft having any form of fault or defect on 21 February 2017.

35. Mr Murray Medway, Chief Pilot at Interair provided a written statement for the Inquest Brief[24] in which he referred to flying the Aircraft on 12 and 13 January 2017. In his statement Mr Medway refers to experiencing a 'landing gear issue' on 13 January 2017. The landing gear was repaired between 13 and 31 January 2017.

E. MR QUARTERMAIN'S FLYING EXPERIENCE

36. Mr Quartermain was 19 years old when he took up flying recreationally and obtained a commercial pilot's licence in 1994[25].

37. As at February 2017 Mr Quartermain had 7,681 flying hours of which 2,400 were in a B200 Aircraft and 73 of which were in the Aircraft: Mr Quartermain was an experienced pilot.[26] At the time of the Accident Mr Quartermain operated a sole trader business, 'Corporate Leisure Aviation' which leased various aircraft as bookings demanded.

38. Mr Quartermain's pilot logbook contains a certification by an industry flight examiner, A Smith, evidencing that Mr Quartermain successfully undertook a flight proficiency check in the Aircraft on 14 April 2016. Mr Smith had been Mr Quartermain's examiner for flight proficiency for approximately 10 years prior to the accident. All of Mr Quartermain's Instrument Proficiency Checks ("IPCs") had been conducted by Mr Smith, until Mr Nishizawa conducted an IPC on 3 November 2015.

39. On 18 November 2014, Mr Quartermain turned 65 and so was thereafter required to successfully complete an operator proficiency check or flight review in an aircraft of the same category or an approved flight simulator of the category of aircraft every 6 months.[27]

40. Mr Quartermain's pilot log book records him having completed a multi-engine flight review on 7 October 2016 which was 'valid' to 31 October 2017 in the Aircraft and

[24] Statement of Mr Murray Medway dated 3 March 2017 pp.76 – 80 Inquest Brief.
[25] ATSB Report, p.4.
[26] ATSB Report, p.4.
[27] *Civil Aviation Regulations* (1988) s.224A(3)(d).

having successfully completed an IPC[28] on 7 October 2016. That logbook also records him having unsuccessfully completed an IPC on 19 October 2015 and the immediately following successful one on 3 November 2015 both of which were conducted by Mr Nishizawa.

Witness Accounts of Mr Quartermain's flying

41. Various witnesses gave evidence of their experiences with Mr Quartermain's flying.

42. In his written statement provided for the Inquest Brief, Mr Richards gave evidence that he considered :

> "*…Max Quartermain to have been a competent pilot based on my own experiences. My most recent flight with Max Quartermain as the pilot in VH-ZCR was on the 26th December 2016 when he flew my family and I from Adelaide to Torquay*."[29]

43. In his statement Mr Anthony Smith, a self-employed contract pilot provided a written statement for the inquest brief which provides:

> "*My full name is Anthony Howard SMITH. I am 58 years of age and reside at an address previously supplied to police. I am a self-employed contract pilot and am currently working as a line pilot, flight instructor and Authorised Test Officer on behalf of the Civil Aviation Authority. My work involves flying corporate charter aircraft for several companies. I conduct checking and training for some commercial operators and advanced flying training. I have been flying as a charter pilot and flight instructor for over 30 years.*
>
> *I first met Max QUARTERMAIN through flying when he was undergoing his flight training for his Commercial Pilots Licence some 25 years ago. I have worked with him and for him since this time. He established Dreamtime Flights which was a flying charter company specialising in corporate touring and fishing tours. He operated a Piper Chieftain and flew all around Australia conducting tours to major cities and outback airstrips. He later operated a Beechcraft King Air conducting corporate charter. His aviation experience was very comprehensive. His approach to aviation was always very professional.*
>
> *I last spoke with Max on the morning of the accident by phone as he was preparing for his trip to King Island. We were discussing the possibility of him requiring myself to fly a second aircraft on some future trips.*

[28] As set-out in the ATSB Report, p.4. "Instrument Proficiency Check" and Operator Proficiency Check" appear to be used interchangeably. I note that *Civil Aviation Authority Regulation* 224A(3) refers to regulation 224A(4) which uses the terms "Operator Proficiency Check", not referring to "Instrument Proficiency Check".
[29] Statement of Mr Chris Richards dated 3 March 2017 pp.71-75 Inquest Brief.

> *Max was a very experienced pilot with many years and hours flying Beechcraft Kingairs flying in all types of conditions and environments. As he held an instrument rating he was required to undergo annual flying proficiency checks. His commercial licence also required an annual CASA medical.*
>
> *In summary I have found Max to be a highly experienced and competent pilot especially on Kingair type aeroplanes.*"[30]

44. In his written statement provided for the Inquest Brief Mr Kym Pantlin, a licensed mechanical engineer employed by InterAir, described one flight with Mr Quartermain:

> "*Once the aircraft had been repaired on* [sometime after 16 December 2016] *I issued the maintenance release and then Max and I went for a flight in VH-ZCR to ensure there were no issues with the plane. Max flew VH-ZCR on this occasion. I'm not a pilot but I've had a bit of experience of flying planes. We were flying for about 30 minutes. We left at about 12:20 PM. As we were taxiing in our taxiway Papa, Max asked me if I'd done the system checks and whether I was happy with him. I told him I had and that I was happy with them, and so Max didn't do his pre-flight engine checks. I thought it was unusual that Max didn't then still do them especially after a maintenance check had just been done. The pre-check flights are mandatory for a pilot before the first flight every day. These checks could take a minute or two at most to conduct. The checks include an over-speed governor check, a feathering check, a rudder boost check, and an auto-feather check.*
>
> *We lined up on the piano keys (the white marks on the runway) on runway 35. Max then turned on the autopilot and then we got clearance from the control tower to take- off. We took off and then turned right towards the city. Max commented that his storm window was making a lot of noise. I said to him that it should quieten down once the aircraft pressurises. He told me the aircraft was not pressurising. That's when I looked down at the pressurisation controller and saw that the switch was in the dump mode. That means the aircraft will not pressurise. I flicked the switch to pressurise and the aircraft started pressurising.*
>
> *Then Max reached down on to the right hand forward side of the pedestal to adjust his heading bar on the pilot's directional gyro. He said that this wasn't working as well. I noticed that he was operating the co-pilot's directional gyro instead of the pilot's. I informed Max to press the heading key on the pilot's instrument display and adjust the knob to move the heading bar. Based on*

[30] Statement of Mr Anthony Smith dated 31 March 2017 pp.54-55 Inquest Brief.

this it seemed like he was not familiar with the systems of the aircraft.

The pilot's display was upgraded around twelve months beforehand. Max had flown this plane since then. We got halfway across Port Phillip Bay. I looked out the right hand window at the engine and I noticed the right hand wing locker was open and the door was flapping in the breeze. I informed Max that the right hand wing locker was open and we turned around and proceeded back to Essendon Airport. It should not be open when flying. It's part of the pilot's checklist. We landed back on runway 35 and Max taxied to the Southern Apron. I left the aircraft and then closed the right wing locker for him. There were only two water bottles left in the wing locker. As I was walking to our hangar I called my dad and told him I thought I was going to die and that I had never been so shaken up in my life. He obviously hadn't done a walk around of the plane prior to flying otherwise he would have noticed the wing locker was open. He didn't follow his check list either otherwise he would have known that the pressurisation was in the dump position.

This experience with Max made me really shaky. I've never been so scared in my whole life. I've flown between 80 and 100 times and never felt like this. It seemed like he was a bit careless. He had been sitting in the plane for an hour beforehand waiting for me to finish the paperwork. He had plenty of time to check everything out. I would never rush a pilot or put pressure on him to rush a flight. I had all afternoon.

On Monday the 19th of December 2016, I walked into the smoko room at around 7 AM and told Ernie and the other guys I would never fly with Max again."[31]

45. In his written statement dated 3 March 2017, provided for the Inquest Brief Mr Medway, a pilot of some experience and the then chief pilot of InterAir set-out why his company stopped leasing aircraft to Mr Quartermain:

> *...knowing Max QUARTERMAIN for three years. He used to come into Interair flying operations on occasions when we were located in the terminal and more regularly when we moved our flying operations to our maintenance hangar. Max brought VH-ZCR in for maintenance and servicing and was basically a nice old man and happy to have a chat with us. He had a lot of experience on the King Air B200. A couple of times Max chartered VH-ITH from Interair if VH-OWN (owned by Max) or VH-ZCR were not available. We didn't use Max as a pilot and Ernie and I made a commercial decision not to allow Max to charter any of our planes. We made this decision because of*

[31] Statement of Mr Kym Pantlin dated 3 March 2017 pp.84-90 Inquest Brief.

discussions with other pilots and my own personal opinion of Max's health, age and ability to perform safe flight.[32]

46. Mr Holbrook, a pilot, provided a statement for the Inquest Brief in which he refers to having known Mr Quartermain for approximately 17 years as a friend and that Mr Quartermain had not shown any signs of mental health issues in the time that he had known him.[33]

47. Mrs Quartermain provided two statements to the Court. In her first statement ("Mrs Quartermain's First Statement") she sets out Mr Quartermain's history of flying.[34] Mrs Quartermain provided a second statement to the Court on 28 October 2021 containing considerably more information than the first statement:

> *"In 2016, it could have been earlier, I convinced Max to apply for a Bus Driving job. It was a twelve-seater bus, where you pick up people and take them to the airport. He was still working as a pilot but only when the jobs came in, but that wasn't very regular. He only lasted one day, as he left the handbrake off on the bus and after he got out it rolled back across the road into the factory. He ended up getting the sack. He was a very proud man and that would have damaged his confidence. He was becoming very forgetful around that time.*
>
> *In July 2016, he had a heart operation. He had valve repair which was done by way of robotic surgery to reduce the time off work. He was given a clearance to fly by CASA, 6 weeks after this surgery. He was still feeling fatigued and wasn't the same after this heart surgery. He seemed to get annoyed because he couldn't remember things. Just before his surgery, Melissa, Max's daughter, came around and wanted him to change his will. He got one of those will's online and he witnessed his own signature….*
>
> *The night before the crash, Max was up all night and was checking the weather site. I don't know how many times he checked it, but it was quite a few. I can't remember what the weather was at the time, but I know that King Island weather can change quickly. I was in bed, but as he was up and down it kept me awake too. I mentioned in my previous statement that he left at 4.30am, so he wouldn't have any sleep.*
>
> *Just before Max died, he just wasn't as sharp anymore, he was becoming very forgetful and forgetting the basic things. I would fly with Max, and he actually wanted me to go on this flight on 21st of February 2017. It wasn't that I didn't feel safe, I just*

[32] Statement of Mr Murray Medway dated 3 March 2017 pp.76-80.
[33] Statement of Mark Holbrook pp.99-100 Inquest Brief.
[34] Statement of Priscilla Quartermain dated 27 March 2017pp. 33-35.

didn't feel comfortable anymore. Even in the car, he used to be a really good driver, and I suppose as you get older things change.

He wasn't as alert, I felt like his mind was always thinking, possibly about all our financial pressures. He was a proud man and I think he felt like a failure. I tried to encourage him and support him, but he was just different towards the end. I'm surprised that CASA passed him and allowed him to continue to fly. Given his physical and mental health I was surprised that he was still allowed to fly.

He just wasn't the confident pilot he used to be.

Max always loved his flying, but in the end, it became a chore, he was just worn out."[35]

48. Mrs Quartermain made her second statement after witnesses had given evidence at the Inquest. After speaking to staff at the Court on 23 September 2021 Mr Medway made a second statement dated 15 November 2021. Both Mrs Quartermain's and Mr Medway's second statements were added to the Inquest Brief.

49. Different people had different perceptions about Mr Quartermain's skills as a pilot. Some of the incidents referred to in the material set-out immediately above including Mr Pantlin's evidence suggest that Mr Quartermain lacked some attention to detail and perhaps some 'check-list discipline'. In aviation of course a lack of attention to detail can easily have fatal outcomes. I also note Mr Nishizawa's evidence, which I later refer to, that he was concerned that he may have to take over control of the aircraft from Mr Quartermain during the first IPC test on 19 October 2015 and of him, Mr Nishizawa, not having experienced that with any other pilot that he was testing.

50. I note that there is no evidence of CASA being aware of these events or perceptions of Mr Quartermain's skills other than the events described by Mr Nishizawa.

51. I draw no direct conclusions from this material other than different people in the aviation industry who knew something of Mr Quartermain's flying held different views about his abilities. The utility of such a conclusion is limited. Had all those who provided statements and given evidence described Mr Quartermain as conscientiously and meticulously utilising appropriate checklists and never having given reason to doubt his ability as a pilot, I could have made a finding to that effect. That this was not the evidence does not require me to make a finding to the contrary, that is that he did not conscientiously and meticulously utilise appropriate checklists

[35] Statement of Priscilla Quartermain dated 28 October 2021.

or that there was reason to doubt his ability as a pilot. The evidence is sufficient for me to be uncertain about Mr Quartermain's 'check-list discipline' and unable to draw a conclusion about what he did or didn't do in that regard before taking-off on 21 February 2017.

F. MR QUARTERMAIN'S HEALTH

52. In 2007, Mr Quartermain was diagnosed with Type 2 Diabetes which was treated with oral medication which facilitating him maintaining optimal glycaemic control. The diabetes did not affect his vision, although he was required to wear prescription lenses.

53. Doctor Fifield provided a written statement for the Inquest Brief dated 11 June 2017. In that statement Dr Fifield refers to then having been a medical practitioner of over 30 years' experience and being entitled to practice as a Designated Aviation Medical Examiner ("DAME") performing pilot medicals under the jurisdiction of the *Civil Aviation Safety Act*.

> *In practising as a DAME, I performed scheduled aviation medicals on Mr Quartermain on 2 occasions, 28/5/15 and 20/6/16. I enclose the copy of the first of these together with the CASA required assessment by an Endocrinologist and Optometrist.*
>
> *The records of the second medical from May 2016 are held by CASA as this was completed online via the CASA website and is not currently available to me. As a consequence of this medical, a heart condition was diagnosed (Mitral Valve Regurgitation). I do not recall whether referral for assessment and management of the condition was made by Endocrinologist Dr Jonathan Cohen or myself. Mr Quartermain subsequently was under the care of a series of Cardiologists and a Cardiothoracic surgeon, the latter performing corrective surgery, and I enclose the correspondence.*
>
> *I saw Mr Quartermain on two subsequent occasions. On 14/7/16, he presented a week after heart surgery with evidence of a right Pleural Effusion (fluid on the lung) and I arranged drainage of the effusion via a local Radiology group and under the advice of this treating surgeon. I last saw him on 19/7/16 at which time his effusion had clinically improved. I did not see him again and further supervision was with his Cardiologist and Surgeon. I last forwarded a specialist report to CASA on 2/217. I am not aware as to when he resumed flying and he had not been cleared to do so as at my last consultation with him on 19/7/16.*

Accompanying this report are the printouts of my medical records, including progress notes, specialist letters, test results and the initial medical I conducted in 2015.[36]

54. The Court provided CASA with a copy of Mrs Quartermain's statement of 28 October 2021 and, on 25 January 2022, CASA provided submissions and further documents in response setting out that:

(a) It has no relevant information available to it about Mr Quartermain's mental health prior to the incident.

(b) It received no relevant complaints or reports of concern from non-medical practitioners (including Mrs Quartermain) about Mr Quartermain's physical or mental health prior to the incident.

(c) The Agreed Facts identify that on 7 July 2016, Mr Quartermain underwent a mitral valve repair (at [31]), and that on 19 July 2016, Dr Scott Fifield determined that Mr Quartermain fulfilled "CASA requirements" to retain a pilot's licence (at [32]). This latter agreed fact concerning Dr Fifield's involvement requires some further elaboration. In the context of his recent heart surgery, Mr Quartermain was cleared by Dr Sanjiv Sharma, MD (Aerospace Medicine) and Senior Aviation Medical Officer on 19 July 2016, following an application Mr Quartermain had made for a Class 1 and 2 Medical Certificate (certificate) (see attached correspondence and cross-reference the statement of Dr Fifield in the Coronial Brief (Version 2) at pp 47 – 48).3 CASA advised Mr Quartermain that he would, at the 12 month renewal of his certificate, need to provide additional supporting information from his treating medical practitioners. He was also advised that if there was any change in his condition or treatment, he was required to ground himself until cleared by a Designated Aviation Medical Examiner (DAME) or CASA in accordance with reg 67.2654 of the Civil Aviation Safety Regulations 1998 (Cth) (the change in health condition requirement).

(d) Mr Quartermain was issued with a certificate on 24 July 2016 from CASA's Principal Medical Officer, subject to conditions (see attached certificate). This certificate was valid until 20 May 2017.

(e) On 24 January 2017, Dr Rebecca Reed, Consultant Cardiologist, made a report in relation to her treatment of Mr Quartermain (cardiology report). This was subsequently provided to CASA by Dr Fifield on behalf of Mr Quartermain on 2 February 2017 (a copy of Dr Fifield's email and the cardiology report is attached). Please note, the

[36] Statement of Dr Scott Fifield dated 11 June 2017 pp.47-48 Inquest Brief.

quality of the formatting of the report is as it was originally received.

(f) On 4 February 2017, based on review of the cardiology report, Dr Sharma of CASA advised Mr Quartermain that he could continue to exercise the privileges attaching to his certificate in accordance with the change in health condition requirement.

55. Taking into account the NAIPS and NOTAM checks and the content of Mrs Quartermain's statement of 28 October 2021 makes it difficult to draw any reliable conclusions about precisely how much sleep Mr Quartermain had overnight 20 – 21 February 2017. Although Mr Quartermain had some health issues he was, according to CASA regulation fit to fly.

G. THE MOUNT HOTHAM INCIDENT

G.1. Background

56. On 3 September 2015, an aircraft flown by Mr Quartermain, registered VH-OWN, was said to have likely flown within 2 nautical miles of and at approximately the same level as VH-LQR, a B200 operated by Altitude Flight Operations Pty Ltd ("Altitude Flights"), near Mount Hotham in a manner that was in breach of the aviation regulations ("Mount Hotham Incident").

57. On 15 September 2015, the chief pilot of Altitude Flights, Mr Ian Morris prepared a report in relation to the Mount Hotham Incident ("Altitude Report")[37] which was submitted to CASA on 16 September 2015.

58. The Altitude Report states, in part:

> *Prior to my arrival, the pilot of VH-OWN reported a missed approach. The pilot of ZMW reported getting visual at or near the minima and landing on RWY 29 Mount Hotham. As both of the metroliner aircraft were still enroute, I was next to commence the RNAV approach from Echo Alpha (from the North). All other aircraft were inbound from the south. On decent and still some time away from reaching my initial approach fix, I asked the pilot of VH-OWN for his position and intentions. The Pilot of VH-OWN reported GPS issues and that he was 10NM to the WEST of Mount Hotham (YHOT), and he intended to remain at LSALT of 7700ft and sort out the problem. Upon hearing 'GPS issues' I became concerned because Mount Hotham had no other*

[37] Altitude Flight Operations Report 'Breakdown of Separation in IMC' dated 15 September 2015. pp.407-418.

navaids for position fixing. Again, I asked the pilot of VH-OWN to confirm his position, and he again reported that he was 10nm to the WEST of Mt Hotham airfield at 7700ft. I then tracked for HOTEA, the initial approach fix from the north, and commenced by approach into Mount Hotham. At 8000ft, I was just visual in between layers of cloud, with dense cloud below. I elected to maintain 8000ft and commence the approach from 4.5nm HOTEI to pick up the profile.

As I turned onto the final approach course at HOTEI, which is a 10nm final for RWY 29, the pilot of VH-OWN called on CTAF and amended his position to 10nm EAST of Mount Hotham. I was alarmed at the close proximity of the other King Air so I asked for his altitude and he replied "7700ft". Further radio conversation took place and VH-OWN turned south and confirmed that he had turned south. It was confirmed that the distance was opening between the aircraft and I then commenced my approach, although now high, and with the weather deteriorating at the minima (pilot observation), I commenced a missed approach. After further distraction from a passenger, I asked each aircraft of their altitude and position again, to maintain separation. The pilot of VH-OWN reported at HOTEB, 7700ft in the holding pattern, still with GPS issues. The pilots of VH-MYI were now in the holding pattern at 9500ft, and I elected to climb to 10,500ft with VH-SSV maintaining FL140.

VH-OWN then commenced another approach and got visual and landed (further incidents at this stage reported to the ATSB from the ARO and a pilot on the ground, relating to a dangerous approach).

VH-MYI commenced an approach and landed. I then commenced an approach and landed. VH-SSV then flew the approach and landed.

The radar track from VH-OWN is shown in Appendix B of this report, and the final RNAV course flown is shown in Appendix E. I am unsure how the RNAV approach was safely executed with GPS issues. The pilot's apparent lack of geographical situational awareness was evident by the pilot's won radio transmission, in addition to the Radar tracks. All radar tracks are sourced from flight aware for VH-OWN on the flight YMEN – YHOT conducted 3rd September 2015. This can be verified by searching flight aware or other radar tracking programs available to the public.

As a Chief Pilot, I am significantly concerned with the breakdown of separation caused by this incident. Although the incident occurred in Class G airspace, separation between aircraft must be maintained at all times. Aircraft on this charter did not have TCAS, as it is not required. This said, safe separation is ensured in IMC through radio communication and

other information available to the pilot. As pilots conducting a commercial operation, this incident should never have occurred. When the incorrect position was transmitted, and confirmed by the pilot of VH-OWN, it not only compromised the safety of VH-OWN, but also the safety of my aircraft and my passengers.

This is not a standard of operation that I would tolerate from my pilots, and I do not accept that this event goes without investigation. Two high performance aircraft with 300ft separation within 1 nm of each other in IMC is ***not safe*** *(If the two aircraft were in fact that close).*

The events of VH-OWN must have been apparent to the passengers, as they refused to fly back with the pilot of VH-OWN. Another pilot was flown to Mt Hotham and he accompanied the pilot of VH-OWN on the sector YHOT-YMEN.

The unsafe approach from the wrong direction conducted by VH-OWN was witnessed by a pilot and the ARO on the ground at Mt Hotham. This is a separate issue and has been reported separately.[38]

G.2. Meeting of CASA on 17 September 2015

59. On 17 September 2015, CASA held a meeting of its Southern Region. As a result of a request CASA provided a minute of that meeting to the Court on 23 September 2021. The minute records that those present were Mr David Smith, Mr David Farquharson, Mr David Edwards, Mr Will Nuttall, Mr Bill Cox and Mr Phil Deville. The Mount Hotham Incident is referred to under the heading "Discussion Points", "comments" as here set out:

> **"*Michelle***
>
> *Priority item for discussion today unless anything else urgently required – incident reported in The Australian today at Mount Hotham*
>
> *Concern over occurrence procedure not working and will have to pass dot point up to EMOPS and DAS* (Director Aviation Safety) *advising that this was dropped when it came through reports last week. Info came through via The Australia to Peter Gibson and Sydney provided an additional report*
>
> *Shortcomings in the occurrence procedure was called out two weeks ago with an audit identifying items not being*

[38] CB 966- 967

> *addressed which were then fixed and tracking report updated – procedure was requested to be updated*
>
> *Bill Cox raised that items had been discussed within the team and passed through Grant re highlighted deficiencies and concerns around occurrence management for the CMT, i.e. standardization of assessment, categories, etc – this was confirmed that there was a suggestion to raise this further, perhaps at next SPRG – will pass notes through to Michelle*
>
> *Continue not to be comfortable in the current procedure and will go back to manually looking at the occurrences daily as these have not been bought to the meeting until 31st August*
>
> *Also uncomfortable about close out procedures of these items with letter forwarded in April by Joe Smith to gather info from same aircraft involved in this new Mt Hotham incident – no further information received or tracked*
>
> *Want to make expectation clear again for Admin of these occurrences and for the interim daily discussion, assigning and minuting to be carried out. Dave Edwards to look further into Mt Hotham incident with David Farquharson's assistance.*

60. CASA was concerned about the "…*occurrence procedure not working*" which fault had been "…*called out two weeks ago*". It appears that the Mount Hotham Incident having been reported in a newspaper which report had come to CASA's attention.

61. On 17 September 2015, Messrs Cheshire and Mr Edwards spoke to Mr Quartermain over the telephone about the Mount Hotham Incident. Later that day Mr Edwards sent an email to Ms Massey (copied to Mr Cheshire and Mr Nishizawa) setting out the content of the conversation with Mr Quartermain to the following effect:

> "*As discussed earlier.*
>
> *This morning Roland Cheshire and I contacted Max Quartermain who is the chief Pilot of Quartermain Aviation. The purpose of this call was to determine whether the aircraft VH-OWN had been operating under the Quartermain AOC* [Air Operation Certificate] *at the time of the alleged incident reported within todays Australian.*
>
> *Whilst on the phone Max offered the information below. We do not consider this to have been a formal interview and will consider the necessity when further information is available.*

- *On the day of the event he was the pilot in command, operating under the Quartermain AOC.*
- *The purpose of the flight was to transport a number of passengers to Hotham for an Audi publicity day. He advised that there were approximately 7 aircraft flying into Hotham for this event.*
- *HE advised that on the first approach he suspected a problem with his GPS (a Garmin 155). At approximately 6000ft he elected to execute a missed approach.*
- *He conducted a second approach and was aware that the aircraft was indicating he was right of track. He again executed a missed approach at approximately 6000ft.*
- *During both approaches he was in IMC* [instrument meteorological conditions].
- *He conducted a third approach where he broke through cloud at approximately 400ft above minima and determined he was right of track, but he considered that he was able to safely land (despite the unstable approach).*
- *He landed without further incident on runway 29.*
- *He highlighted both the GPS and the HSI (coupled to the GPS) indicated that during approach that he was right of track and he was concerned as to the accuracy of the information due to the Course Deviation Indicator (CDI) swinging.*
- *Prior to departure back to Essendon Mr Quartermain arranged for a second pilot to be positioned to accompany him back to Essendon. The second pilot being required due to the increased workload associated with the unserviceable GPS.*
- *The return sector was accomplished without further incident or GPS anomaly.*
- *Mr Quartermain refuted the statement within the Australian that passengers had refused to return on-board the aircraft. He further advised that there had not been an air prox event.*

After return to Melbourne

- *Mr Quartermain elected to replace the GPS data card. The original was discarded.*
- *Mr Quartermain stated he discussed the event with Simpson Aviation (a Moorabbin based Avionic CAR 30), who advised that the likely cause was a corrupt data card. As the data card had been replaced he decided not to raise the issue on the aircraft Maintenance Release.*

Southern Region proposes the following:

1. *Mr Quartermain's competency. If Mr Quartermain's Instrument Proficiency Check (IPC) is close to expiry, require that the renewal be conducted by CASA. If not, it would be suggested that he volunteer for reassessment by CASA. IF this is not forthcoming CASA to consider mandating this action.*
2. *Serviceability of the Aircraft VH-OWN. CASA to encourage the serviceability verification of the GPS and associated systems on the aircraft. If this is not forthcoming to direct this maintenance be accomplished. Richard White has been contacted to ensure that this maintenance will not affect the ATSB investigation.*
3. *Audit the process used by Mr Quartermain to purchase data cards and download data for use.*
4. *CASA to apply for Air Services records to determine whether an Air proximity event occurred. The process for this has been discussed with Richard White*.[39]

G.3. Evidence of Mr Rowland Cheshire

62. Mr Cheshire provided a written statement for the Inquest Brief dated 16 September 2021 and gave *viva voce* evidence on 22 September 2021.[40]

63. Mr Cheshire gave evidence that on 17 September 2015 he was asked by his then acting Team Leader, Mr Edwards to participate in a telephone 'interview' with Mr Quartermain.[41] He did not recall having been provided with any background information about the Mount Hotham Incident before Mr Edwards asked him to participate in the 'interview'. Mr Edwards told him about the matters that needed to be discussed with Mr Quartermain in light of the events which he understood had come to CASA's attention.[42] The 'interview' as not recorded and was an "informal enquiry.".[43] Mr Cheshire gave evidence that he understood that the primary purpose was to ask Mr Quartermain for information to assist CASA to understand what occurred during the Mount Hotham Incident.[44]

64. Mr Cheshire's witness statement provides that:[45]

[39] CB 974-975.
[40] Statement of Rowland Cheshire dated 16 September 2021, Exhibit 3.
[41] Statement of Rowland Cheshire dated 16 September 2021, Exhibit 3. Par. [15].
[42] Statement of Rowland Cheshire dated 16 September 2021, Exhibit 3. Par. [15].
[43] Statement of Rowland Cheshire dated 16 September 2021, Exhibit 3. Par. [17].
[44] Statement of Rowland Cheshire dated 16 September 2021, Exhibit 3. Par. [17].
[45] Statement of Rowland Cheshire dated 16 September 2021, Exhibit 3. Par's [19], [20] and [24].

> *To the best of his recollection, Mr Quartermain indicated that he first thought the autopilot to be the source of a tracking error, while conducting an instrument approach. Mr Quartermain stated that he subsequently disengaged the autopilot to fly the aircraft manually. Mr Quartermain also subsequently identified that the GNSS [Global Navigation Satellite System] navigation system was in error.*
>
> *He was concerned that Mr Quartermain had persisted with the flight though he was uncertain of the reliability of the aircraft tracking and the elevated terrain where he was flying. There seemed to be he said a reasonable basis to discontinue further attempts to approach and land at Mt Hotham, and to divert to a suitable airport where he could approach and land without the use of unreliable equipment.*
>
> *He recalled that the Mount Hotham Incident was featured in a news article around the time of CASA first becoming aware of the incident. I assumed that the Australian Transport Safety Bureau was aware of the incident in light of its role in relation to immediately reportable matters.*

65. Mr Cheshire gave evidence that he did not request the video camera footage sent to ATSB and recorded in the email of 17 September 2015.

66. Mr Cheshire was the author of a "Surveillance Report" concerning the Mount Hotham Incident dated 29 January 2016.[46] The substance of the report is contained in its "Executive Summary":

> "*This report details the findings of CASA surveillance conducted in response to an incident near Mount Hotham airport (Victoria on the 3rd of September 2015) in which Beechcraft (B200), registration VH-OWN, flown by Mr Max Quartermain (the pilot) (ARN 162911) allegedly flew within 2 nautical miles of and at approximately the same level as VH-LQR, a B200 operated by Altitude Flight Operations (based at Bankstown airport near Sydney).*
>
> *The pilot attempted 3 RNAV-Z (GNSS) approaches to Mt Hotham runway 29 utilising the aircraft's on-board GNSS navigation system coupled to the aircraft auto-pilot. In all instances the aircraft flew in error to the right of track preventing the pilot from establishing visual reference with the runway.*
>
> *Following the third missed approach the pilot attempted the RNAV-Z Rwy29 approach to land at Mount Hotham for a 4th time. On this occasion having identified that the auto-pilot appeared to be the source of the error, the pilot elected not to use*

[46] Attachment 5 to Mr Cheshire's Statement.

the auto-pilot and flew the aircraft manually to a successful approach and landing.

- *Note: Following one of the missed approaches while repositioning VH-OWN for a subsequent approach it is alleged that the pilot flew within close proximity to VH-LQR which was also manoeuvring for the RNAV-Z Rwy29 approach. The pilot-in-command of VH-LQR estimated that both aircraft flew within 2nm of each other, based on the position reported by the pilot of VH-OWN.*

- *Note: VH-OWN was being flown by autopilot at the time of the alleged conflict – the accuracy of the position reported by the pilot (of VH-OWN) was based on the belief that the GNSS position information was accurate and the autopilot was steering the aircraft accurately.*

- *Note: Air Services Australia was not able to provide a voice transcript (does not exist) which mentions 2nm separation between VH-OWN and VH-LQR. Furthermore, Air Services reported that VH-OWN was not visible on radar at various times, associated with VH-OWN descending during the RNAV-Z approach and flying out of radar coverage.*

Following the landing of VH-OWN and VH-LQR at Mount Hotham the pilots allegedly discussed the events involving both aircraft, and according to Mr Quartermain he believed the matter had been resolved. Mr Quartermain then engaged the services of Mr Tony Smith, a staff pilot and also an approved testing officer to assist with the flight of VH-OWN back to Essendon. Mr Quartermain also explained that the error was not able to be reproduced after replacing the GNSS navigational database card.

On a separate occasion following the flight from Mount Hotham, Mr Quartermain had Mr Smith assist with in-flight testing of the navigation and auto-pilot equipment installed in VH-OWN. During an approach at Latrobe Valley erratic Course Deviation Indicator (CDI) indications were observed, these were recorded by phone video camera and sent to the ATSB.

Upon replacement of the navigation data card (new data cycle) no further problems were encountered. However, Mr Quartermain subsequently destroyed the old data card.

In response to the above, CASA elected to assess Mr Quartermain during his annual instrument proficiency check (IPC). A Southern Region Flying Operations inspector (FOI) was assigned the task, however, Mr Quartermain did not pass the test (but he was awarded a pass on a subsequent re-test). It was identified that Mr Quartermain was out of practice or lacked

training in some areas, tending to overly rely on the auto-pilot, to the detriment of his flying skills.

It was also observed that Mr Quartermain was under considerable stress as a result of significant change within his operation – that is, the withdrawal of VH-OWN from Mr Quartermain's operation due to the aircraft owner removing continued airworthiness support.

Further observations and recommendations made by the testing FOI include:

- *Mr Quartermain's situational awareness and task prioritisation were not of a satisfactory standard.*

- *Mr Quartermain agreed to undergo additional and thorough training with Mr Tony Smith in a B200 aircraft fitted with a different type of GNSS equipment.*

It is also recommended that Mr Quartermain consider periodical training in a B200 simulator with a view to using the simulator as a means to enhance training opportunities.

In summary, insufficient evidence was available to reliably confirm/show that the proximity of VH-OWN and VH-LQR was as alleged; that is, that the aircraft flew within 2 nautical miles of each other at a similar level."

67. The Report contains observations:

> "*Surveillance findings indicate that Mr Quartermain may benefit from ongoing training opportunities by use of a B200 simulator.*
>
> *The availability of a B200 simulator (Ansett Aviation Training) in proximity to Mr Quartermain's operational locality, provides opportunity for non-jeopardy training in a variety of areas not possible in the aircraft.*
>
> *The use of a simulator assists in the development and maintenance of decision making, situational awareness and practical skills, as well as exposing the pilot to real time scenarios and associated flight management practices*."

68. Mr Cheshire described his report as a report built upon a '*desktop surveillance'*. He gave evidence (in response to questions from Counsel Assisting) that:[47]

> *Q. Given your investigation was described as a desktop - I just want to use your words, a desktop report, did you consider asking for further authority or further permission to investigate the matter?---*

[47] T157 (3-12).

> *A.* *I was instructed by my team leader at the time that the purpose of the, um - of the surveillance of the desktop was to, um, record CASAs, ah, response to the Mount Hotham incident, in relation to Mr Quartermain's pilot competencies. Um, at that time, I had not been given, um, authority to conduct an investigation, um, into those other matters*.

69. In relation to Mr Quartermain agreeing to undergo additional training with Mr Tony Smith Mr Cheshire gave evidence that he understood that Mr Quartermain had undergone further training with Mr Tony Smith prior to his second IPC test on 3 November 2015 although he had seen no evidence of that having occurred. Mr Cheshire gave evidence that he did not consider mandating simulator training.[48]

70. In response to specific questions from the Court as to the purpose of his report, Mr Cheshire said :

> "*And so do you see that - what do you say then about the purpose of the report - was it simply to record what CASA had done, or was it to record what CASA had done, in some way, shape or form, assess it yourself and make some appropriate recommendations?*---
>
> *Okay. Um, yeah, I'm sorry, I'm not being clear in my answer. The, um, preamble, um, describing the incident, um, was intended as an overview, to give, um, context and reasons for CASA's, um, action in relation to Mr Quartermain. The report then goes on to, um, say what the findings were, ah, in relation to the tests that Mr Quartermain undertook. The recommendation is based on the observations of the, um, testing FOI, in consultation with me. And it goes to, um, Mr Quartermain's - opportunities for Mr Quartermain to maintain and improve his skills*.". [49]

71. In relation to his ability to 'escalate', Mr Cheshire gave evidence:

> "*So, could you have said - could you have concluded that there was insufficient information for you to make clear findings, but that you needed a more thorough investigation to do that, and so if you like, escalate the investigation process from a desktop investigation to something else - could you have done that?*---
>
> *Um, I would - that process to escalate the desktop, um, would - I would need, ah, permission to do that.*
>
> *So you need to seek permission to do that, is that what the answer is?*---

[48] T159 (18-26) and T165 (4-5).
[49] T.163. (16-31)

I would need to seek permission to do that, yes.

From whom would you need to seek permission?---

I - the - my first (indistinct) to call would be, ah, my team leader.".[50]

72. Mr Cheshire gave evidence that after he spoke to Mr Quartermain by telephone on 17 September 2015, he had no further involvement in any "investigation" of circumstances surrounding the Mount Hotham Incident until he was asked to conduct the desktop surveillance "out of the blue" and that he understood that discussions in relation to Mr Quartermain were being had "somewhere else".[51]

73. Mr Cheshire remembers the period in question to be an extremely busy time because of other events involving a complicated investigation. [52]

74. Mr Cheshire clarified the purpose of his investigation including that he was not investigating the Mount Hotham Incident. He gave evidence that:

> "*Bearing in mind you're undertaking an investigation into what you saw as a serious event at Mount Hotham - you were undertaking an investigation into what you thought was a serious event at Mount Hotham, is that right?---*
>
> *I was reviewing the data for the purpose of providing context and reasons to CASA's, um, response to the event at Mount Hotham, um, in relation to Mr Quartermain's flying competencies. I wasn't conducting an investigation into the event.*
>
> *…The report was a very narrow scope, um, to record CASA's actions. It was not intended to be an investigation into this incident.*
>
> *Um, maybe I've been unclear, um, in my responses to you. There was no intention to do, ah, an in-depth report in relation to this. We were looking at Mr Quartermain's pilot competencies as a result of the Mount Hotham event. The detail and the precise nature of this, um, event was better investigated by the ATSB, as to its cause or factors. Um, I'm not a qualified investigator and I don't have the expertise to carry out an investigation of that nature.*" [53]

[50] T.164.
[51] See generally T.161. to 168.
[52] T.169.
[53] T.170. and T.171.

75. The tenor of Mr Cheshire's evidence was that that despite failing the IPC conducted by Mr Nishizawa on 19 October 2015, because Mr Quartermain passed the second IPC, 3 November 2015,[54] and had undergone training in between the first and the second IPCs that this addressed concerns about his flying as raised in the Altitude Report.[55]

G.4. Evidence of David Edwards

76. Mr Edwards gave evidence by way of witness statement dated 16 September 2021[56] and gave *viva voce* evidence on 22 September 2021 that:

(a) He was (then) the Manager Regulatory Services. Between 2000 and 7 December 2015, he was an Airworthiness Inspector and from 7 December 2015 he was a Certificate Team Manager.

(b) Between 4 October 2015 and 17 August 2017 and he was acting as the Certificate Management Team Leader.

(c) He became aware of the Mount Hotham Incident through media reports and his attendance at the CTM meeting on 17 September 2015.

(d) In discussing the incident with Mr Quartermain over the telephone on 17 September 2015, his function was:

> "…*to gain some initial information. Not so much an investigative function, but just to get some preliminary - preliminary review of the um, available information*".[57]

(e) He understood that the incident came to CASA through reporting in the *Australian* newspaper. [58]

(f) He initially gave evidence that he did not consider the Altitude Report to relate to a serious incident because it was written by a commercial competitor of the operator.[59]

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[54] See Below
[55] See T.172.
[56] Exhibit 4.
[57] T.182.
[58] T.183.
[59] See generally T.183.

(g) In response to questioning from the Court, he clarified that the Mount Hotham Incident was a serious event.[60]

(h) Ms Michelle Massey the regional manager, decided to obtain information and Mr Edwards was tasked at the meeting of 17 September 2015 with identifying who the operator was and obtaining downloads from Air Services of the radar and radio recordings. He was assigned an 'action item' to "review the incident". He was not assigned by CASA to investigate the Mount Hotham Incident.[61]

(i) The radio and radar tapes were requested from Air Services Australia to try and determine what happened on 3 September 2015.[62] He was surprised that Mr Cheshire had given evidence that the radio and radar tape data had not been collected.[63]

(j) A decision was not made on 17 September 2015 at the meeting as to whether or not the matter ought to progress by way of desktop assessment or coordinated enforcement.[64]

(k) When he relinquished his role on 4 October 2015 the decision as to whether to move to "coordinated enforcement" possibly had not been made.[65]

(l) In terms of the determination as to whether or not to move to "coordinated enforcement" Mr Edwards said:[66]

> *Yes. That being the trajectory of the way the process works, when the material is - was collated - collected by you and when such material is collected, who and - let's start with who. Who makes the decision then about whether a matter ought to remain as a desktop assessment or move onto coordinated enforcement?-*
>
> *--Normally an inspectorate and certificate management team leaders would form a view of the opinion - sorry, a view of the material and a - - -*
>
> *I'm sorry, who did you say that was? There was the inspectors?-*

[60] See generally T.184.
[61] T.182.
[62] Witness Statement para [16].
[63] T.190.
[64] T.193.
[65] T.192.
[66] T.193.to T194.

--The inspectorate in task - as tasked and the certificate team - management team leader as tasked would conduct a review of the available information…..And then that - that would - would result in some form of recommendation.

And the - when you say some form of recommendation, do you mean, whether in fact the matter was to stay as the desktop assessment or whether it was to move on?---

That is correct.

As this was raised as an audit, the finalised audit report would need to go to the regional manager for formal approval. Alternatively, the - if the - if the inspectorate believed it should be escalated to a formal investigation, a referral to coordinated enforcement would have been made.

I see. And so axiomatically I suppose, the decision was made that this matter was to stay as a desktop assessment?

---Um, I can only talk to 4 October and ah on 4 October there was insufficient um, information to - to finalise the report.

Certainly. When I say axiomatically apart from what - from the evidence that's before this court, the matter stayed as a desktop assessment and so is it reasonable to assume on that basis that it - a decision was made that it ought to?---Yes.

Yes.

And that would've been made by the other people you were talking about the inspectorate and the certificate team leaders etcetera, conducting - - -?

---Correct.

Ms Massey was the regional manager who was responsible for determining any enforcement action.[67]

(m) The decision to keep the matter as a desktop assessment rather than moving to coordinated enforcement was influenced by the fact that Mr Quartermain had completed a satisfactory second IPC (with Mr Nishizawa on 3 November 2015).[68] Upon receipt of the desktop assessment a decision would be made within CASA to move to coordinated enforcement or not by a regional manager

[67] T.205.
[68] See T.195 to T.196.

but that this decision was unlikely to be minuted.[69] Mr Edwards did not recall reviewing the radio and radar tapes from Air Services Australia.[70] He was unsure whether or not the radar and radio tapes were in fact obtained,[71] and clarified earlier evidence stated that he had been tasked with getting the information (the radio and radar tapes). It was something that he had not done before, and that he could not recall whether or not he did it personally or whether he delegated.[72]

The ATSB Report

77. On 27 June 2018, after the Accident, the ATSB released a report *"Near-collision and operational event involving Beech Aircraft Corp B200, VH-OWN and VH-LQR*". The summary provides:

> ***What happened***
>
> *On 3 September 2015, several multi-engine turboprop aircraft converged on the airspace above Mount Hotham Airport, Victoria, as part of a multi-day charter involving several operators. While conducting a number of area navigation (RNAV) Global Navigation Satellite System (GNSS) approaches, the pilot of a participating Beech Aircraft Corp B200 (King Air) aircraft, registered VH-OWN, descended the aircraft below the minimum altitude and exceeded the tracking tolerance of the approach after experiencing GPS/autopilot difficulties. The pilot twice climbed the aircraft without following the prescribed missed approach procedure and manoeuvred in the Mount Hotham area. During this manoeuvring, the aircraft came into close proximity to another King Air, registered VH-LQR, which had commenced the same approach. Both aircraft were in instrument meteorological conditions and unable to sight each other. Significant manoeuvring was also observed as VH-OWN was on final approach to the Mount Hotham runway. All aircraft landed safely at Mount Hotham without injury to passengers or crew.*
>
> ***What the ATSB found***
>
> *Difficulties in operating the GPS/autopilot resulted in the pilot of VH-OWN experiencing an unexpected reduction in the level of supporting flight automation, and a significant increase in workload, while attempting to conduct RNAV (GNSS) approaches into Mount Hotham Airport. This increased workload affected both the pilot's ability to follow established tracks such as the published approach and missed approach, and*

[69] See generally T.196.
[70] T.198.
[71] T.199 (1-2).
[72] See generally T.201.

his ability to communicate his position accurately to other aircraft and the air traffic controller.
Although radar coverage in the area was limited, there were opportunities for the air traffic controller to identify when VH-OWN was having tracking difficulties during all three approaches, and when VH-OWN tracked towards the expected position of VH-LQR. However, this position information was not effectively communicated, resulting in a missed opportunity to prevent a potential controlled flight into terrain and/or collision with VH-LQR.

What's been done as a result

The pilot of VH-OWN underwent flight testing by both a delegate of the Civil Aviation Safety Authority (CASA), and by a flying operations inspector employed by CASA, who recommended remedial training. Independent of this investigation, in February 2017 it became mandatory for all aircraft operating under instrument flight rules to be fitted with Automatic Dependence Surveillance – Broadcast, further increasing surveillance capability nationally, including in the Mount Hotham area.
Additionally, and independent of this investigation, the Department of Defence radar system, capable of surveillance in the Mount Hotham area, is scheduled for upgrade in late 2018. The radar system upgrade is likely to enhance the national air traffic system through the increased compatibility between that radar and the Airservices Australia surveillance system."

78. Mr Hoffmeister gave evidence that there were "some resourcing difficulties around the time" which explained the delay in the report prepared by ATSB in relation to the Mount Hotham incident (published on 27 June 2018). He was not the author of ATSB's report in relation to Mount Hotham and the individual who produced the report no longer worked for ATSB. When the ATSB commenced the investigation into the Mount Hotham Incident is unclear.

H. MR QUARTERMAIN'S INSTRUMENT PROFICIENY CHECKS (IPC's) 2015

H.1. Check of 19 October 2015

79. Mr Nishizawa prepared a written statement dated 7 August 2017[73] for the Inquest Brief and gave *viva voce* evidence on 21 September 2021. Mr Nshizawa gave evidence

[73] Exhibit 1. Inquest Brief pp.56-64.

that he was a Flying Operations Inspector (FOI) as defined in the Safety Assurance Branch located in CASA's South Region office Melbourne.

80. Mr Nishizawa gave evidence that prior to testing Mr Quartermain he was aware that Mr Quartermain had been interviewed by CASA officers – Acting Certificate Team Leader David Edwards and FOI Rowland Cheshire on 17 September 2015 about the Mount Hotham Incident of 3 September 2015. He was aware that as a result of the Altitude Report and the subsequent interview CASA was concerned that Mr Quartermain may not have sufficient aeronautical skill and knowledge to safely exercise the privileges conferred by his instrument rating, particularly as it related to the conduct of GNSS approaches and in order to address this concern, it was agreed between CASA and Mr Quartermain that a CASA officer would conduct Mr Quartermain's next IPC.[74]

81. In his witness statement Mr Nishizawa refers to meeting Mr Quartermain on 19 October 2015 at the Essendon Airport and to the test being conducted in the same aircraft type as the Aircraft.[75]

82. Mr Nishizawa gave evidence of having 'passed' Mr Quartermain in relation to an assessment of 'ground components' and of Mr Quartermain telling him that his flight tests and checks had been done by the same person for the last ten years. Mr Nishizawa thought Mr Quartermain looked nervous and stressed because he was being tested by a different person. Mr Quartermain flew Mr Nishizawa to Bendigo up to which point "…*there was no failure assessment in relation to what Mr. Quartermain had demonstrated to me up to that point*."

83. Mr Nishizawa gave evidence that upon leaving Bendigo Mr Quartermain adequately demonstrated handling a simulated engine failure on take-off.

84. During landing at Essendon Mr Nishizawa introduced a simulated engine failure. While Mr Quartermain was dealing with this simulated failure Mr Nishizawa noticed that while flight instruments indicated that the aircraft was within the lateral and vertical tolerance of the ILS approach, the aircraft had a large bank angle and the 'slip indicator' showed the aircraft was flying with a large sideslip suggesting that Mr Quartermain was not appropriately handling the aircraft under the asymmetric

[74] T.19-20.
[75] T32.

conditions induced by the simulated engine failure. Mr Nishizawa considered that Mr. Quartermain may have incorrectly operated the aileron trim wheel instead of the rudder trim wheel. Mr Nishizawa refers to telling Mr. Quartermain, *"That's the aileron trim tab.*" Mr Nishizawa described Mr Quartermain quickly grabbing and rotating the rudder trim wheel balancing the aircraft. Mr Nishizawa believed that Mr Quartermain was struggling to fly the aircraft within the tolerances of the ILS (instrument landing system) approach and the approach became unstable. Mr. Quartermain exchanged short radio calls with Essendon control tower and Mr Nishizawa referred to noticing that the aircraft was side-slipping in the opposite direction from the direction it had earlier slipped. Mr Nishizawa concluded that Mr Quartermain was not adequately controlling the aircraft and '*…I told him to disregard the ILS approach, you have visual (flight conditions), and I will give you back the (simulated) failed engine. Do whatever you need to do to conduct a safe landing*.'

85. Mr Nishizawa referred to taking into account the state of the aircraft and Mr Quartermain's poor handling of the approach, he was ready to take over control of the aircraft. Mr Nishizawa referred to Mr Quartermain regaining control and safely landing without further instruction or intervention.

86. Mr Nishizawa failed Mr Quartermain's IPC on the basis of the approach to Essendon airport and advised him to consider undertaking training more often and suggested getting trained in a simulator at Ansett Aviation Training.

87. When giving *viva voce* evidence Mr Nishizawa agreed that it was his impression that Mr Quartermain accidently used the wrong instrument control when dealing with the simulated engine failure when landing at Essendon and that it was rare for pilots to fail IPCs. [76]

88. Mr Nishizawa gave evidence that Mr Quartermain was not, in his view, current in relation to his IPC at the time of the Mount Hotham incident because of his age and regulation 22.004(a) *Civil Aviation Regulations* ("**the Regulations**").[77]

[76] T.23.
[77] See T.19.

89. On 19 October 2015 Mr Nishizawa sent a detailed report to John Costa of CASA in relation to the IPC that was conducted in which he referred to Mr Quartermain mistakenly using the wrong instrument control during the IPC test and that it was not common for a pilot to intend to operate one mechanical instrument, but in fact operate the other.[78]

90. The email report of 19 October 2015 contained a recommendation that it was premature to determine that Mr Quartermain's license should be suspended, varied or cancelled.[79]

91. I asked Mr Nishizawa about his account of Mr Quartermain attempting to land at Essendon with a nominated engine failure.[80]

> Q Mr Nishizawa this was a very serious incident?---
> A Yes.
>
> Q So serious in fact that at least according to paragraph 43 of your statement you said, you were ready to take over control of the aircraft?
> A Yes, that is correct.
>
> Q Of the 21 IPC tests that he'd done previously, had you found yourself in such - or similar circumstances?
> A Nowhere near this state.
> …

H.2. Checklist Discipline during IPC

92. In response to questioning from counsel assisting Mr Magowan, Mr Nishizawa gave evidence that during the IPC:

(a) Mr Quartermain used a one-page laminated card (not one produced from the manufacturer) to perform a check-list;[81]

(b) Mr Quartermain was "a little confused" as to how to use the check-list;[82]

[78] T.25.
[79] CB 985.
[80] T.26-27.
[81] T47.
[82] T48.

(c) Mr Nishizawa formed the impression that it was possible that Mr Quartermain was not readily using a check-list (but he also considered the possibility that it was perhaps a more psychological effect of Mr Nishizawa flying with him).[83]

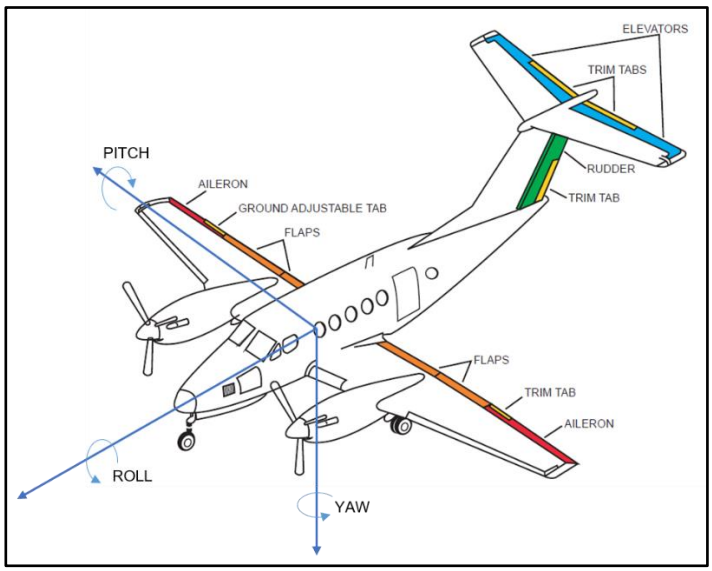
H.3. Subsequent IPC – 3 November 2015

93. On 3 November 2015 Mr Quartermain passed the further IPC.

94. Mr Quartermain's pilot logbook contains a certification by an industry flight examiner, Mr Smith, that Mr Quartermain successfully undertook a flight proficiency check in the Aircraft on 14 April 2016.

H.4. Opinion as to Obviousness of Rudder Trim – Nose Full Left.

95. Mr Nishizawa was shown figure 3 in the ATSB Report, here reproduced:



Mr Nishizawa gave evidence that the rudder trim tab was about 1 meter top to bottom and that if it was in full left or right position, it would be a relatively large deflection angle for this kind of aircraft, would be about 3 inches off the centre instead of sitting neutrally aligned to the rudder, and if you were to walk around the aircraft with the trim tab in full deflection, it would be obvious.

I. AUDIT AND SURVEILLANCE REPORT ON CORPORATE LEISURE AVIATION

[83] T49.

96. On 5 November 2015, Mr Nishizawa and Mr Andrew Canyon visited the headquarters of Corporate Leisure Aviation.[84] They spent the whole day there as a result of which Mr Nishizawa drew a 'Surveillance Report' that was issued on 3 February 2016[85] making 11 adverse findings in relation to the manner in which Mr Quartermain operated Corporate Leisure Aviation and drew nine 'non-compliance notices' ("NCN") in relation to those findings.

97. The Executive Summary notes of the Surveillance Report referred to the scope of the operation having changed substantially in March 2015 when the operator took over charter flights from another AOC holder. As a result, the business' operation was said to have expanded to include another pilot and several piston engine aircraft, operating from Bendigo. The Chief Pilot's (Mr Quartermain) oversight of this expanded operation was determined to be ineffective. Findings suggest the Chief Pilot did not follow the company Operations Manual, or the policies and procedures in the Operations Manual did not adequately accommodate the expanded scope of operation.

98. The "Technical Summary" of the report records that:

> "*The Chief Pilot also appears to resort to CASA providing him detailed guidance and instructions to keep his AOC operation compliant. The Chief Pilot was not clear of the status of his AOC's DAMP and associated procedures and requirements (NCN 713956 refers), he failed to organise and undertake six-monthly proficiency check (NCN 713955) and his BE-200 flight check system was not approved by CASA (NCN 713808). While under Section 9 of the Civil Aviation Act, CASA's functions include safety education, training and advice, the operator is reminded that CASA expects the Chief Pilot to be proactive and conversant in managing the AOC operations including regulatory compliance*."[86]

99. The report contained a table of findings entitled "Summary of Surveillance Findings" reproduced below:

[84] Inquest Brief pp.907-922. T33.
[85] T33.
[86] Surveillance Report p.81 Inquest Brief.

No.	Type	Subject/Title	Due Date
713804	NCN	MANAGEMENT OF DUTY AND FLIGHT TIMES RECORD	*24/02/2016*
713805	NCN	USE OF NON-COMPANY FORMS	*24/02/2016*
713806	NCN	OPERATIONS MANUAL DISTRIBUTION	*24/02/2016*
713807	NCN	MANAGEMENT OF STAFF RECORD	*24/02/2016*
713808	NCN	USE OF UNAPPROVED FLIGHT CHECK SYSTEM	*24/02/2016*
713940	NCN	AOC AIRWORTHINESS REQUIREMENTS	*24/02/2016*
713941	NCN	OPERATIONS MANUAL REGULATORY REVIEW	*24/02/2016*
713955	NCN	PILOT NOT UNDERTAKING SIX-MONTHLY PROFICIENCY CHECKS	*24/02/2016*
713956	NCN	MANAGEMENT OF MICRO-BUSINESS DAMP	*24/02/2016*
807649	Obs	HAAMC REQUIREMENTS FOR AOC	*N/A*
807650	Obs	VH-MZM MAINTENANCE RELEASE AND SCHEDULING	*N/A*

100. The Surveillance Report identifies 9 non-compliance notices (which are attached to the report) and makes two further observations. The Technical Summary states:

> "*Flying Operations*
>
> *The flying operations component of this audit included a discussion with the Chief Pilot, a review of charter records, a review of staff files including duty and flight time records.*
>
> *The Chief Pilot's demonstrated performance of remotely managing the AOC operation is ineffective in various areas:*
>
> *i) while the pilot's duty and flight time records were maintained, the Chief Pilot stated to the auditors that he has never reviewed the actual record to ensure that data accuracy and prescribed limits were observed (NCN 713804 refers),*
>
> *ii) a copy of operations manual was not made available for the Bendigo base or for pilots based at Bendigo (NCN 713806),*
>
> *iii) different forms were used at the Bendigo base (NCN 713805), and*
>
> *iv) a sampled staff file was incomplete (NCN 713807).*
>
> *The Chief Pilot also appears to resort to CASA providing him detailed guidance and instructions to keep his AOC operation compliant. The Chief Pilot was not clear of the status of his AOC's DAMP and associated procedures and requirements (NCN 713956 refers), he failed to organise and undertake six-monthly proficiency check (NCN 713955) and his BE-200 flight check system was not approved by CASA (NCN 713808). While under Section 9 of the Civil Aviation Act, CASA's functions include safety education, training and advice, the operator is reminded that CASA expects the Chief Pilot to be proactive and conversant in managing the AOC operations including regulatory compliance.*
>
> *Airworthiness*

> *The certificate holder was audited against content of the CASA AOC handbook volume 3 and the airworthiness requirements pertaining to the aircraft and the operations normally covered by an AOC.*"

101. NCN 713955 refers to Mr Quartermain not undertaking 6 months IPC's and having been in breach of that requirement when the Mount Hotham Incident occurred. Mr Quartermain was required to comply with the notices by 24 February 2016.[87]

The NCN states:

> *Details of deficiency:*
>
> *The Chief Pilot Maxwell Quartermain (CPL 162911) had his 65th birthday on 18 November 2014. He undertook an Instrument Proficiency Check on 22 September 2014 and the next check was not successfully completed until 3 November 2015. Records indicate that he had flown multiple commercial flying between 22 March 2015 (six months from the previous check) and 3 November 2015, including a charter flight on 3 September which he described that one sector Essendon - Mount Hotham was a single pilot operation.*
>
> *For the acquittal of this NCN, the operator must submit a proficiency check program detailing how the pilot is able to maintain skills and knowledges required for the safe conduct of the flight. Based on the recent observation of the Chief Pilot's flying by CASA, it is recommended that considerations be given to MOS61 NTS18&2 and the use of BE-200 flight simulator.*

102. There is no evidence to indicate that Mr Quartermain attended a B200 simulator after January 2016.

103. NCN 713808 found the operator did not have a Flight Check System (FCS)[88] approval which was required for the B200 aircraft. Compliance was required by 24 February 2016.

The NCN states:

> *Details of deficiency:*
>
> *The operator conducts its AOC operations in BE-200 type aircraft. For the purpose of AOC operations, this type requires a flight check system approval.*

[87] The *Civil Aviation Regulations 1988* regulation 224(A)(3)(d) states that a pilot in command who was 65 years of age or older must successfully complete an instrument IPC or flight review in an aircraft of the same category or an approved flight simulator for the category of aircraft, within 6 months before the date of a flight.
[88] AFCS being the combination of activities, processes and documentation that together provide a system for the safe conduct of flight operations in the aircraft.

> *The operator must make an application and obtain CASA approval prior to resuming commercial operation in BE-200 aircraft.*
>
> *Criteria:*
>
> *CAR 232 Flight check system (1) The operator of an aircraft shall establish a flight check system for each type of aircraft, setting out the procedure to be followed by the pilot in command and other flight crew members prior to and on take-off, in flight, on landing and in emergency situations. (2) A flight check system shall be subject to the prior approval of CASA, and CASA may at any time require the system to be revised in such manner as CASA specifies.*

104. Mr Nishizawa gave evidence that at the time of issuing his surveillance report on 3 February 2016, it was likely that he had reviewed the surveillance report prepared by Mr Cheshire in relation to the Mount Hotham incident. He was asked to identify whose responsibility it was, as at 3 February 2016, to determine whether or not Mr Quartermain should maintain his license.[89] He gave evidence that it was hard to answer because in order to determine whether or not to suspend or cancel it was necessary to take the matter to "coordinated enforcement".[90] He was unaware of the matter ever being referred to 'coordinated enforcement'. When asked whether as at 3 February 2016, CASA should have been investigating whether Mr Quartermain should have maintained his license, Mr Nishizawa said "*I don't know*".[91]

105. Consistent with the documents produced pursuant to the directions of the Court, CASA received a series of handwritten responses from Mr Quartermain to the NCNs set-out in the Surveillance Report all dated 12 February 2016. On 26 February 2016, Mr Nishizawa wrote to Mr Quartermain rejecting the responses.[92] Mr Nishizawa was asked as to the consequence of non-compliance with the NCNs and gave evidence that the NCNs had the potential to affect the air operation certificate ("AOC") rather than Mr Quartermain's personal flight crew license, and that the suspension or cancellation of the AOC would have required further steps.[93] Mr Nishizawa gave evidence that CASA used a system called "Sky Sentinel" to amongst other things, manage NCNs.

106. Mr Nishizawa was taken in his evidence to the ATSB report which provides:

[89] T.38.
[90] T.39.
[91] T.39.
[92] Inquest Brief pp.1031-1032.
[93] See generally T.41.

> *CASA records showed that NCN 713808 was issued to Corporate & Leisure Aviation (the operator) on 3 February 2016 and required an acceptable response to CASA within 30 days. CASA worked with the operator to achieve compliance and in December 2016, they received an updated operations manual with a section addressing checklist requirements for the B200 aircraft. Appendix B0-1 to the operations manual stated that, for ZCR:*
>
> *The currently approved CASA check lists for both Normal and Emergency Procedure will be used at all times. Copies of checklists are readily accessible to pilots in the cockpit of all company Aircraft, and a copy is also available in the company reference library. Checklists are in a tabbed booklet format suitable for use on the pilot's knee and include tabbed emergency procedures at the bank for easy access. The current approved CASA checklist is the manufacturer's checklist P/N 101-590010-157E issued July 1996.*
>
> *CASA indicated this was an acceptable means of compliance and closed NCN 713808 on 20 December 2016 in their internal tracking system. The operator was not formally advised that the NCN had been closed, and a CAR 232 approval was not issued at this time. CASA correspondence with the operator indicated that they intended to inspect the checklist in the aircraft prior to the approval being issued, however, this did not occur before the accident flight.*

107. Mr Nishizawa gave evidence that "P/N 101-590010-157E" is the part number that was said to refer to a physical check-list which, according to the operations manual was going to be purchased and placed in the Aircraft.[94] Mr Nishizawa was taken to a series of emails (again produced pursuant to a direction of the Court) as between Mr Tony Franc, Flying Operations Manager, Safety Assurance Branch of CASA, and Mr Quartermain as between 10 November 2016 and 21 November 2016 (the 2016 emails forwarding to Mr Nishizawa the earlier correspondence as between Mr Franc and Mr Quartermain).

108. On 23 September 2021, CASA produced to the Court a further version of the Operations Manual dated 7 November 2016, amendment No. 11 in the name of Mr Quartermain.[95] Under the heading "CheckLists" it provides:

> *The currently approved CASA check lists for both Normal and Emergency Procedures will be used at all times. Copies of checklists are readily accessible to pilots in the cockpit of all company Aircraft, and a copy is also available in the company reference library. Checklists are in a tabbed booklet format*

[94] See T62 (30-31) to T63 (1-2).
[95] Section B0, page 8.

suitable for use on the pilot's knee and include tabbed emergency procedures at the back for each access.
The current approved CASA checklist is the manufacturer's checklist P/N 101-590010-157E issued July 1996.

109. Mr Franc did not give evidence. The emails suggest that Mr Franc was to inspect the the checklist in the Aircraft (in order to acquit the NCN), albeit that this did not occur.

110. Mr Nishizawa gave evidence that NCN 713808 should not have been acquitted until an inspection of the aircraft was undertaken and the relevant checklist seen to be present.[96]

J. THE ACCIDENT

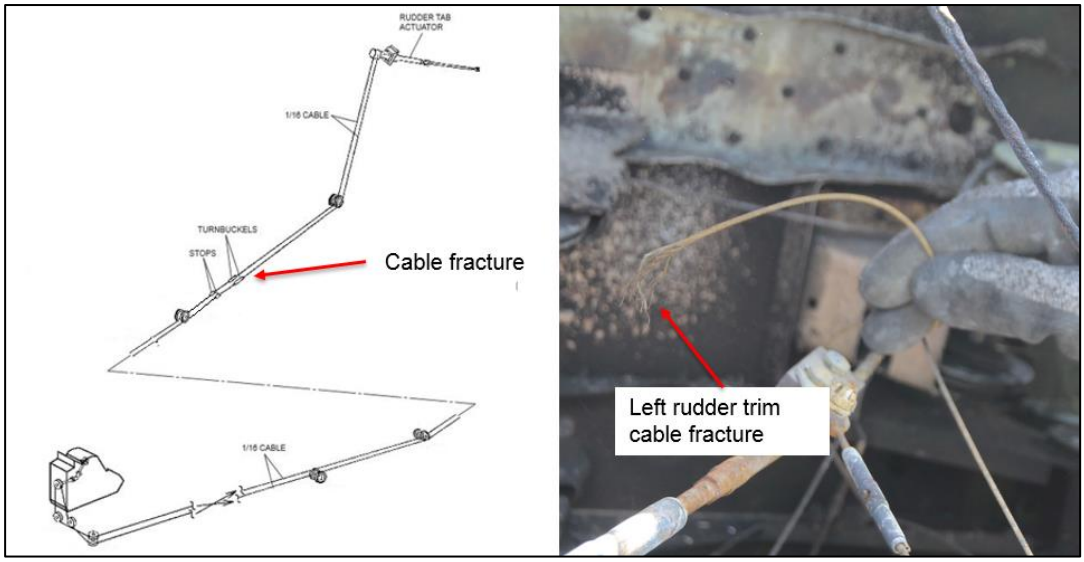
J.1. Evidence of Mr Hoffmeister

111. Mr Hoffmeister gave evidence that:

(a) He was the manager of the Aviation Transport Safety Bureau (ATSB). He was the author of the ATSB Report, he was the investigator in charge and he was assisted in compiling the ATSB Report by a multi-disciplinary team.[97]

(b) The rudder trim is operated by a mechanical system consisting of a trim wheel on the right side of the pedestal in the aircraft cockpit. The rudder trim wheel is connected to the trim tab via cable which connects to an 'actuator'. The actuator, which positions the trim tab is in the tail of the aircraft. Mr Hoffmeister made reference to figure 30 in his report reproduced here:

[96] T.58-61.
[97] See generally T.86.



(c) In order to turn the rudder trim to 'full nose-left' position from a neutral position, you would have to turn the trim wheel in the cockpit to the left through 180° approximately three times to get the full travel.[98]

(d) He determined with reference to a number of contributing factors that the Aircraft's rudder trim was likely in the position of 'full nose-left' at the *commencement of take-off,*[99] such factors including:

(i) photographs of the crash site which showed abrasion marks and compressed damage were present on the right side of the rudder and the rudder trim tab indicated that the area made contact with a hard flat abrasive surface. The abrasion damage indicated that the rudder trim tab was positioned to the right of the rudder surface during the impact sequence;[100]

(ii) when the rudder trim tab is moved to the right, it will have an effect on the rudder assembly which will move the entire rudder assembly to the left. The effect on the aircraft of moving the rudder assembly to the left is to move the nose of the aircraft about its vertical access to the left. The abrasion marks observed during inspection the displacement indicated that the rudder trim was in a 'full nose-left' position at impact. An analysis of the roof impact marks and CCTV footage showed the aircraft at

[98] T.91.
[99] T.92.
[100] T.94.

concrete parapet wall on the right side of the aircraft before exiting the roof of the building. It was likely that the impact of the wall caused the abrasion damage to the rudder assembly.[101]

(e) ADSB data supported the aircraft veering left between points A and B (as set out in the report) as the aircraft accelerated during the ground roll. ADSB data was transmitted from the aircraft primarily for air traffic control purposes. The data is transmitted more frequently once the aircraft is airborne. Parameters include latitude, longitude, ground speed, track angle, vertical speed and pressure altitude.

(f) The aircraft's nose wheel provides direction or control while the aircraft is on the ground. An aerodynamically induced yawing movement would be easier to manage while the aircraft's wheels including the nose wheel were in contact with the runway. Rotation refers to the pilot applying back pressure on the control wheel causing the aircraft's nose wheel to lift off the ground,[102] and an analysis of CCTV footage and dash cam footage determined the aircraft had a substantial left yaw or sideslip [between points D and G] (in figure 16 reproduced at para [113] hereunder.[103]

(g) He ruled out manipulation of the rudder trim (during take-off) as the pilot's hands were required to be on the yoke and power levers during the ground roll.

112. Mr Hoffmeister gave evidence:[104]

> "*If you refer to the image on slide 16 the yoke or control wheel is outside the power levers and there was no reason to adjust the rudder or aileron trim during the ground roll.*
>
> *Malfunction of other aircraft systems was ruled as the aircraft override or disconnect these systems. The trim being bumped by a passenger was also ruled out as the trim requires at least three deliberate turns through 180 degrees to travel from neutral to full left. It was likely that the aircraft rudder trim was in the nose left position from at least the commencement of the ground roll.*"

113. Asked a question by Mr Hornby:

Mr Hornby:

[101] T.95.
[102] T.98.
[103] T.99.
[104] T100.-T101.

Mr Hoffmeister just to clarify your reasons for saying that, on previous slide number, slide number 12 which takes figure 11 from page 18 of the ATSB report, your evidence that the ADSB data from those two points, point A and point B shows a left movement on the runway before take-off?

Mr Hoffmeister:

That's correct. During the take-off roll the pilot maintains the aircraft on the centre line of the runway. The ATSB does say that by the time the aircraft reached point B it had diverged from the centre line.

Mr Hornby:

So something at that stage had caused the aircraft to yaw slightly to the left during that take-off roll?

Mr Hoffmeister:

That's correct and the position of the rubber trim.

114. According to the manufacturer's checklist (referred to in the Surveillance Report – see above), the position of the rudder trim was required to be checked five times before take-off.[105] Given that fire destroyed the airplane after the Accident the ATSB was unable to say if the manufacturer's checklist was in the cockpit on the morning of 21 February. A check with the manufacturer's records reveals no record of Mr Quartermain having made any such purchase.

115. The first two opportunities to check the rudder trim were in the pre-flight inspections. Pre-flight inspections call for the rudder trim tab to be set to the zero units, or the

[105] T.102.

neutral position, and then for the pilot to visually confirm the rudder trim tab was in the neutral position when walking around the aircraft.[106] The subsequent three occasions were during 'the before engine starting checklist', before 'take-off run-up checklist' and the 'before take-off final items checklist', each of which checks required the rudder trim position to be confirmed as in the neutral position.[107]

116. The Inter-Air CCTV footage of the aircraft and pilot on the morning of the accident showed actions consistent with Mr Quartermain performing of pre-flight inspection. ATSB was unable to determine whether or not the inspection items related to checking the position of the rudder trim were performed or the position of the rudder trim tab was confirmed at that stage. The CCTV footage provided to the Court was the best available footage but did not clearly show the position of the rudder trim tab.[108]

117. Mr Hoffmeister gave evidence that:[109]

> "*The aircraft VHZCR had been removed from a secure hangar and parked on the apron the previous day in preparation for the flight. The apron was within a security controlled airport. The ATSB found no evidence that the rudder trim control being manipulated between the previous flight on 5 February 2017 and the accident flight.*
> *Other pilots reported a function check which involved moving the trim wheel from full left to full right then back to centre as part of their pre-flight inspection procedure. The ATSB was unable to determine the accident pilot's practices with regard to checking the rudder trim positions during the pre-flight inspection. It is possible that if the pilot was performing a functional check of the rudder trim he may have been distracted and inadvertently left the trim in the full nose left position.*
>
> *There was insufficient evidence to determine if the rudder trim was in the full nose left position prior to the pilot arriving at the airport or if the pilot manipulated the rudder trim nose left position as part of the pre-flight inspection. While there was variable evidence showing the pilot's checklist discipline the ATSB was unable to establish if he was using a checklist on the accident flight or if he relied on his memory to action checklist items.*
>
> *THE CORONER: Does the checklist require that movement check?*
> *---Not it does not Your Honour. We found through the investigation that some other operators trying to be more*

[106] T.102.
[107] T.102.
[108] See generally T.104 to 104.
[109] T.104-T105.

> *thorough would exercise, as they called it, the trim for the full left then the full right then back to neutral. I think just to more thorough in their pre-flight and to, I guess to confirm for themselves that the trim was able to be moved.*

118. Somewhere between points A and B (see figure 16 at paragraph 113 above) the aircraft moved to the left of the runway centre line.[110] The veering to the left was probably evident to the pilot at or before the Aircraft reached 94 metres.[111] If the aircraft was veering left on the runway, the most common scenario for pilots trained for a twin-engine aircraft would be an engine failure on take-off. If an engine failure occurred before the rotation speed of 94 knots, the pilot should have rejected the take-off. If the rotation speed had been attained and the pilot believed that the aircraft would fly the standard procedure is then to take-off to secure the engine and then come back in.

119. The effect of the rudder trim position would be felt through the pilot's rudder pedals and would have been proportional to the aircraft airspeed. So as the airspeed built up the effect would have become evident through the pilot's rudder pedals.[112] This would be more easily managed through the nose wheel steering system while the aircraft was on the runway but this would become more difficult as the nose wheel steering effect would no longer have any effect and the pilot would be required to use the rudder to control the aircraft.[113]

120. Mr Hoffmeister believed that both engines were producing take-off power and the initial climb rate was broadly consistent with the expected performance of the aircraft. This was consistent with witness observations and analysis from dash cam footage.

121. Using actual time lapse CCTV footage ATSB has produced figure 23 (reproduced below) which provided an indicative depiction of the Aircraft's vertical flight path. The substantial sideslip was first observed at point six on the image. At this point the Aircraft transitioned from a climb to a descent.

[110] T108.
[111] T108.
[112] T.109.
[113] See generally T.110.

122. Mr Hoffmeister gave evidence that:[114]

> *So following the onset of the sideslip ZCR began a descent followed by the collision with the outlet centre building. The data also showed an increase divergence of the runway centre line when airborne and reduction in rate of climb and airspeed following the commencement of the sideslip. This was* consistent *with the theoretical effects of a substantial left sideslip on the aircraft's performance.*
>
> *Full context there was a little over 10 seconds from between points 1 and the collision with building. After take-off it was likely that the pilot was applying right rudder pedal in an attempt to compensate the yaw induced by the missed set rudder trim. The missed set trim would've had a stronger influence on the aircraft's heading once airborne due to the loss of direction or control provided by ZCR's nose wheel steering.*
>
> *While the ATSB was unable to quantify the rudder pedal forces required to overcome the missed set rudder trim when tested in a B250 class D simulator the forces could only be counteracted by the pilot for a short period of time. The pilot who flew the simulator commented that he was unable to offset the rudder force - sorry say again, the pilot who flew the simulator commented that he was able to offset the rudder force until his leg gave out. This happened on three consecutive attempts.*
>
> *In the simulator results once the pilot of ZCR was no longer able to counteract rudder forces the yaw was on (indistinct words) likely had a significant effect on the aircraft's climb performance and controllability. The ATSB's analysis of the ATSB data and CCTV footage found a clear correlation between ZCR yawing and a reduction in performance. ZCR's performance degraded to the point at which control could not be maintained of the aircraft subsequently collided with the outlet centre.*

[114] T.111-T113.

> *The adverse effect on performance and control of the missed set rudder trim during take-off has also been shown in previous similar occurrences. While these occurrences vary they all resulted in significant control difficulties and a loss of performance. This was consistent with the results of the B250 simulator flights where each flight resulted in the loss of control."*

123. Mr Hoffmeister explained that when the Aircraft was removed from the hanger and parked on the apron on 20 February 2017, it was moved with the use of a 'tug'. There would be no reason for the tug operator to interfere with the position of the rudder trim.[115] There was no requirement by way of an after-flight check to leave the rudder trim in a central position.[116]

124. The observations of Mr Quartermain walking around the aircraft for about 4 minutes (seen through the Inter Air footage) is consistent with a pre-flight check.[117]

125. To the extent that Mr Quartermain visually inspected the Aircraft rudder-trim while walking around the Aircraft, if it was in 'full nose-left' position it would have been obvious.[118]

126. In relation to the information contained at page 4 of the report ("the pilot was reported to normally go to bed between 2030 and 2100 or earlier if an earlier flight was scheduled for the next day"), he, Mr Hoffmeister believed that information came from the pilot's partner.[119] In response to questions from counsel assisting, Mr Hoffmeister accepted that it was possible that Mr Quartermain was awake until at least 11.56pm the evening before the accident, slept for 4 or 5 hours and then got up and accessed the ATSB data at 4.56am in the morning, but he gave evidence that he based ATSB's assessment on Mr Quartermain's normal habits.[120]

127. It was put by Mr Magowan and accepted by Mr Hoffmeister that there were two logical possibilities as to how the rudder trim came to be in 'full nose-left' position, namely that the rudder trim position was somehow in that position when Mr Quartermain first boarded the Aircraft on 21 February 2017 and he didn't notice it or, alternatively, prior to the commencement of the runway roll it was manually moved

[115] See generally T.111-T122.
[116] See T.122.
[117] See generally T.123.
[118] T.124.
[119] T.127.
[120] T128.

to that position by Mr Quartermain for some inexplicable reason. When asked to express an opinion as to the likely probability of either of these propositions, Mr Hoffmeister gave evidence with some confidence that the second possibility was more likely. He said that :[121]

> "*I think I can. If I could first deal with the likelihood of, um, how the trim was moved to that position, I think it's more likely that the pilot would have moved the trim to the position, as opposed to either a previous pilot or a person unknown, while the aircraft was on the ground. The reason I say this is because, starting with the previous flight, we spoke to the pilot of the previous flight and they reported nothing unusual about that flight or with the aircraft and no reason to have left the trim, other than a neutral position. So, that's why I think that's likely. We also spoke to everyone that we were aware of that had any involvement with the aircraft between (indistinct) February, the last flight and the accident flight, and those people we spoke to, um, only one of those people actually accessed the cabin of the aircraft. The other people just observed – the other person just observed the aircraft from the outside. And the person that did access the aircraft told us that they didn't touch anything in the aircraft other than documentation. And the nature of the trim wheel is not likely to be bumped to move to a different position; it has to be manually moved, like, quite deliberately, three turns (indistinct). Um, so, that's why I think those options are unlikely and in addition to that, um, if – the ATSB were unaware of any other reason or person who may have accessed the aircraft after its last flight. Um, so, that's why I think that's unlikely. Now, the reason I think it's more likely that the pilot may have moved the trim to that position is in talking to other pilots, it became evident to us that the practice of, as they call it, exercising the rudder trim, which is moving it to both limits of its travel to check its functionality, it was reasonably confident. It wasn't – not everyone did it, but we were surprised, um, that it was a reasonably common practice. So, we were never able to determine what the pilot's practice was. But if I have to choose from the possibilities that you presented, I think the pilot moving it more likely. But we did not have enough evidence to say that as a finding.*"

128. Mr Hoffmeister gave evidence that he had become aware as part of his investigation of a practice whereby some pilots manually test the rudder trim as part of the pre-flight process. This is not mandated. He gave evidence that he was not aware of the practice of pilots manually testing the rudder trim as part of their pre-flight process (or at least how widespread it was) until conducting this investigation.

[121] T.131-T132.

129. From where the Aircraft was parked, to the commencement of the runway from which it took off, there was no reason to manipulate the rudder trim control.

130. In relation to any control mechanism that is close to the rudder trim tab control mechanism that might be similar in physical appearance or style and would need to be utilised before the aircraft became airborne, the only mechanism would be the aileron trim and Mr Hoffmeister gave evidence that he did not believe that there would be any reason to operate the aileron before the aircraft became airborne.[122]

131. With reference to figure 13 in the ATSB Report and cross-referenced to table 3 which contained each of the checks of the rudder trim that ought to have been provided pursuant to the manufacturer's checklist, Mr Hoffmeister charted where each of the checks ought to have been performed (see image below).

[122] T.134-135.

132. Mr Hoffmeister's simple message in relation to this accident was the disciplined use of checklists. Compliance with the manufacturer's checklist would, in Mr Hoffmeister's opinion, very likely have averted this tragedy.[123]

133. Mr Hoffmeister agreed that if a function test was performed on the rudder trim tab, it would be performed as part of the pre-flight inspection (which equates to the time of the first test of the rudder trim position pursuant to the published checklist) so that one of the checklist's subsequent requirements for checking the rudder trim tab would have identified the pilot having left the control wheel in the wrong position after the function test.

J.2. Other Later Provided Evidence

134. Mr Medway is the chief pilot of Inter Air and a pilot of considerable experience. He provided to the Court two signed witness statements in which he referred to his knowledge of Mr Quartermain and his view of the cause of the crash. I have set out the relevant content of his first statement above in the section dealing with Mr Quartermain's flying experience.

135. During the hearing in September 2021, the Court received an email from Mr Medway which, in effect, queried the explanation and evidence given by Mr Hoffmeister and the ATSB dealing with the cause of the crash. I directed that a statement be taken from Mr Medway.

136. Mr Medway provided a statement dated 15 November 2021 in which he states, in part:

> "*Summary of Facts*
>
> *A Kingair at full power does not slow down when you lower its nose. There has to have been a power reduction of some magnitude. A Kingair even with one engine failed and gear down would still increase speed to 121kts whilst climbing.*
>
> *A depowering of the left engine, would result in a yaw to left during the take-off roll. It would then start to yaw more once airborne(as the undercarriage is no longer touching the ground), creating a secondary effect of roll. The pilot reaction to any roll to the left, would be right*
> *aileron input. This would lead to increased drag from the left (down-going) aileron. As the drag is out at the tip of the wing it has a large moment arm and considerably increases the yaw to the left. This is known to pilots as Adverse Aileron Yaw.*

[123] T.146.

A possible consideration for this is Termed Throttle rollback. If the throttle friction is not capable of maintaining a power setting, the spring-tension in the throttle cable may retard the Power lever and depower the engine(s)-(not necessarily the same amount).

The ATSB has begun reporting another Kingair incident, I believe it is involving power rollback upon rotation, where loss of directional control resulted in an Air Ambulance on the 19th of August 2021. This incident ended in a successful outcome ,as the ambulance pilots are simulator trained and checked periodically and are used to handling failures for many different scenarios. I look forward to the outcome of the investigation.

The ZCR aircraft was also equipped with full Raisebeck Modifications. Giving even greater performance and stability over and above the normal factory built kingair. (Raisebeck modifications are performance enhancing modifications, including Enhanced leading edges, DUAL AFT STRAKES, Improved RAM air recovery system, super-quiet turbofan propellors, High Flotation landing gear and Wing lockers for improved storage.

The dual aft strakes improve the directional stability of the kingair. Many Pilots have been through the Kingair B200 Simulator at Tullamarine. They have all attempted a full left rudder trim take-off. All easily controlled the yaw with a half depression of the right rudder pedal. This is a 3 bladed simulator and has poorer climb performance and no Raisebeck mods like ZCR, yet still easily departed under control of the pilot at maximum takeoff weight.

K. SUBMISSIONS

137. Counsel assisting identified four issues to be determined:

(a) The cause of the accident;

(b) The circumstances surrounding the accident including the processes of dealing with NCNs in particular NCN 713808;

(c) The adequacy of CASA's response to the Mount Hotham incident on 3 September 2015; and

(d) The relationship and division of tasks between CASA and ATSB subsequent to accidents such as this one.

138. I have considered those submissions in making the findings below.

K.1. Oral submissions

Civil Aviation Safety Authority

139. Mr McDermott made detailed written submissions on behalf of CASA on 23 November 2021 including that:

(a) CASA saw itself as, and conducted itself as a 'model litigant'.

(b) As at the date of the Accident, other than for the Mount Hotham incident, as far as CASA was aware Mr Quartermain had been a pilot of good standing for a long time. CASA was not aware of any information to the contrary.

(c) In conducting the Inquest the Court ought not engage in a broad, unidentified investigation as to merits of alternative enforcement options that CASA could or should have adopted or considered in relation to Mr Quartermain's flying. The Court should not engage in any such exercise without there being a significant body of additional material made available to it (by CASA) and reasonably, fairly, holistically and meaningfully engaging with that material.

(d) It was necessary that the Court would have needed to hear from more senior witnesses and also, have those witnesses directed as to matters more specifically about what occurred to make determinations in relation to the merits of alternative enforcement options that may have been available to CASA before it could make a positive finding that CASA has somehow failed in its enforcement function (and to do so would risk denying CASA procedural fairness).

(e) The best evidence before the Court was the contemporaneous documents that had been made available to the Court.

(f) The email of 17 September 2015 from Mr Edwards to Ms Massey demonstrated prompt, decisive action directed to CASA's principle statutory function of safety first.

(g) Subsequent to the desktop assessment an IPC was scheduled promptly having regard to the availability of Mr Nishizawa.

(h) ATSB was an important statutory body with a real investigative function for determining what occurred from a safety perspective looking backwards in relation to what occurred at Mount Hotham.

(i) Mr Quartermain passed the IPC conducted on 3 November 2015, having been given a credit for some of the passes on the earlier failed IPC on 19 October 2015.

(j) The Surveillance Report was a summary of audit findings to which may be attached specific findings for the certificate operator to consider, address and, if required, respond to CASA with notification.

(k) Mr Cheshire was clear in his evidence that the desktop assessment was never intended to be a full investigation into the Mount Hotham event. Rather, it was a background context to the primary and immediate concern of CASA – under its statutory function – whether Mr Quartermain was competent to fly under the relevant instrument flight rules, which were relevantly and objectively assessed by Mr Nishizawa on two occasions.

(l) CASA is a safety regulator, not an investigator, in contrast to ATSB. It was ATSB who was able to provide information acquired during the course of its investigation as considered necessary for CASA to consider, having regard to its safety regulation role.

(m) All of the above steps were conveyed to each of CASA's relevant oversighting managers by the CASA witnesses, with CASA's witnesses being 'oversighted'.

(n) It was unclear exactly what it was which was important in order to determine whether or not key people other than the CASA witnesses who gave evidence needed to be heard. The evidence of each of the CASA witnesses that they were not decision-makers for the purpose of enforcement action was not credibly challenged. If the suggestion was that CASA should have done more, the questioning should have been much more targeted by specific reference to a greater body of material properly and carefully assessed by this Court, having specifically identified what infirmities there were in the process and whether or not those infirmities were known then as opposed to reconfigured now by hindsight bias.

(o) The Court should have regard to the evidence of Mr Smith that Mr Quartermain was a highly experienced and competent pilot, especially in the King Air type aeroplanes, and his approach to aviation was always professional.

(p) Having regard to CASA's role as a regulator, there was an insufficient basis to suggest that enforcement action should have been taken at the relevant time.

(q) Having regard to the limited material before the Court, the Court did not have a firm basis to evaluate whether or not enforcement action should have been appropriately taken.

(r) CASA did not contend that the fact that the flight check system was inappropriate.

(s) That insofar as there was evidence now before the Court which was critical in relation to Mr Quartermain's flying conduct, there was an insufficient basis to determine whether those matters would have come to the attention CASA had there been a more detailed investigation into the Mount Hotham event.

(t) There was no evidence that mandatory simulator training would have prevented the accident, but that CASA conceded that extra training would likely have helped, and that the IPCs had a "curative effect" in relation to Mount Hotham.

Australian Transport Safety Bureau

140. Mr Hornby for the ATSB submitted that:

(a) Post the Inquest it had no reason to change its findings as published in the ATSB Report.

(b) In relation to Mr Magowan's submission concerning fatigue, ATSB had a different view which was expressed in ATSB's findings, namely that ATSB was unable to determine that fatigue was a factor. Further expert evidence was needed to determine whether or not fatigue was a contributing factor.

(c) ATSB's finding was that an incorrect flight check system was being used by Mr Quartermain. It was not a finding contributing to the Accident. Regardless of which flight check system was being used, the checks required for the rudder

trim were the same and would have revealed any misalignment of the rudder trim had they been undertaken and properly performed.

(d) There was evidence from the Accident sufficient to show that the rudder trim was likely in the 'full nose-left' position, affecting the aircraft's controllability and the collision with the Retail Outlet Centre building. This was consistent with the physical evidence, including the actuator which showed that the rudder trim was in 'full nose-left' as well. This was consistent with the CCTV footage and witness statements.

(e) Consistent with Mr Hoffmeister's evidence and that of other witnesses there was nothing to suggest the engines were not delivering power appropriately.

(f) The evidence of Mr Hoffmeister showed that a pilot would not likely experience the effects of rudder trim being in a 'full nose-left' position until late in the take-off roll by way of an experience of a yaw to the left. Then there is only a matter of seconds to diagnose what is causing the yaw. A pilot's training is likely to lead them to first check whether the issue is asymmetric engine power. When they check the instruments and realise that it is not, it is going to be extremely challenging for a pilot to diagnose the problem and correct it in time to avoid the accident. There is a matter of seconds to do that, as was the case in this particular accident.

(g) The ATSB agreed with counsel assisting's submissions as to the importance of using checklist and checklist discipline, and that this was the key safety measure to be taken from the Inquest.

MyJet

141. Mr Lithgow for MyJet submitted:

(a) There was no evidence of airworthiness or maintenance issues that caused or contributed to the collision.

(b) There was nothing that could have put Mr Richards or MyJet 'on notice' that Mr Quartermain was anything other than a competent pilot. Further, at least some of the evidence was complimentary to him as an experienced pilot albeit that some evidence was not so complimentary.

(c) Mr Medway was a harsh critic of Mr Quartermain but had not flown with him.

(d) The Court ought not conflate the non-compliance notice, and in particular whether or not a flight check system had been proved under Mr Quartermain's AOC, with the existence (or otherwise) of a flight check system.

K.2. Written Submissions

142. The Court received written submissions from ATSB, CASA and MyJet.

Australian Transport Safety Bureau

143. ATSB provided two sets of written submissions, the first addressing Mrs Quartermain's and Mr Murray's further statements, and the second dated 22 October 2021 addressing issues raised at the Inquest.

144. ATSB submitted that in relation to Mrs Quartermain's statement:

(a) That it reiterated page 5 of the ATSB Report which concluded that Mr Quartermain had a sleep window of approximately 8 hours, but had a period of wakefulness during the night, when he checked NAIPS.

(b) There was insufficient evidence to find that fatigue was a 'contributing factor'.

(c) ATSB did not have enough direct evidence about Mr Quartermain's actions and behaviours on the morning before the Accident to allow them to reliably isolate fatigue from other potential reasons for any errors.

145. Further (by written submissions dated 22 October 2021) that:

(a) ATSB was a no blame investigator.

(b) In accordance with the Minister for Infrastructure, Transport and Regional Development's Statement of Expectations for ATSB, the ATSB gives priority to investigations that have the highest risk or potential to deliver the greatest public benefits through systemic improvements to transport standards.

(c) With respect to making any further findings of contribution regarding Mr Quartermain's actions, the ATSB referred to the evidence of Mr Hoffmeister and submitted that[124]:

> *A pilot is unlikely to experience the effects of the rudder trim being in a nose left position until late in the take-off roll – a yaw to the left. In this accident there was only a matter of seconds to diagnose what was causing the yaw before a decision had to be made whether to rotate or reject the take-off. A pilot's training is likely to lead them to first check whether the issue is asymmetric engine power.*
>
> *When the pilot checks the instruments and realises that is not the issue, it is going to be challenging for any pilot to diagnose the problem and take action to avoid an accident. For this occurrence, after take-off, there was only a further 10 seconds before impact with the pilot attempting to control the aircraft in a rapidly developing left sideslip*

146. In relation to Mr Medway's statement, ATSB submitted:

> *"Mr Medway offers comments on the performance characteristics of the B200 King Air aircraft and offers different scenarios for the fact situation involving VH-ZCR on 21 February 2021. Mr Medway states that 'a Kingair at full power does not slow down when you lower its nose. There has to have been a power reduction of some magnitude. A Kingair even with one engine failed and gear down would still increase speed to 121kts whilst climbing.'*
>
> *With regard to the above statement, the ATSB notes that Mr Medway has not made mention of the aircraft's substantial left sideslip which would have reduced both thrust and lift. The ATSB's report at p.46 provides the following information about sideslip effect on performance:*
>
> > *'An increase in an aircraft's sideslip angle will decrease aerodynamic efficiency and aircraft performance. It was not possible to quantify the effects on ZCR without flight testing or complex engineering modelling. Both these options were outside the scope of the investigation and this information was not held by the aircraft manufacturer.'*
>
> *A sideslip will affect aircraft performance in a number of ways, including by:*
>
> - *reducing thrust, due to the change in propeller inflow angles*

[124] Taken very largely from Mr Hoffmeister's *viva voce* evidence T.84-149.

- *increasing form drag26 as a greater surface area of the aircraft is facing the relative airflow (Figure 39 and Figure 40)*
- *reducing the amount of wing available to produce lift, due to the fuselage and engine cowls blanking airflow to portions of the wing (Figure 41)*
- *creating a rolling moment (in the case of a nose-left yaw it will create a left wing down rolling moment).'*

Opposite aileron input would have been required to keep the wings level during the observed sideslip in this event. This aileron input will have the effect of further increasing drag on the aircraft.

Mr Medway also advises, 'Many Pilots have been through the Kingair B200 Simulator at Tullamarine. They have all attempted a full left rudder trim take-off. All easily controlled the yaw with a half depression of the right rudder pedal. This is a 3 bladed simulator and has poorer climb performance and no Raisebeck mods like ZCR, yet still easily departed under the control of the pilot at maximum take-off weight.

The ATSB did not observe the testing that Mr Medway references. However, the ATSB notes that this testing was conducted in a level B simulator. Flight simulators range from levels A to D with level D being the highest standard. This is the most realistic simulator in which you can learn to fly and train. The testing that was conducted for the ATSB for the purpose of its investigation was done in a class D simulator. The ATSB report contained the following statement at page 46 from the pilot who conducted the testing:

The yaw on take-off was manageable but at the limit of any normal control input. Should have rejected the take-off. After take-off the aircraft was manageable but challenging up to about 140 knots at which time because of aerodynamic flow around the rudder it became uncontrollable. Your leg will give out and then you will lose control. It would take an exceptional human to fly the aircraft for any length of time in this condition. The exercise was repeated 3 times with the same result each time. Bear in mind I had knowledge of the event before performing the take-offs.

MyJet

147. By written submissions dated 28 January 2022, MyJet submitted that:

(a) that there was no evidence or suggestion that there was any maintenance or airworthiness issues with the Aircraft that caused or contributed to the loss of control and collision with terrain on 21 February 2017; and

(b) in such circumstances there is no basis for an adverse finding to be made against MyJet Pty Ltd in relation to the mechanical, electrical or airframe aspects of the Aircraft or the hiring of the Aircraft to Max Quartermain.

Civil Aviation Safety Authority

148. By written submissions dated 22 October 2021, CASA submitted that, principally responding to the oral submissions and recommendations made by counsel assisting is that:

(a) there was largely an entirely insufficient evidentiary or cogent basis to justify the making of the bulk of the recommendations, let alone for many of the urged factual findings or general comments said to justify the same.

(b) the Court should avoid hindsight basis.

(c) there was no basis for a finding (as urged by counsel assisting) that CASA's response to the Mount Hotham Incident was perfunctory, incompetent, inadequate and confused and that the Court could not be "comfortably satisfied" of the matters relied upon. CASA sought to assist the Court as a model litigant and was not obliged to put forward a broader array of evidentiary material of potential relevance as its complex statutory role as a regulator of civil aviation safety, even in the context of matters potentially referrable to Mr Quartermain personally, at least without much earlier, and more targeted request or directions from this Court.

(d) there was insufficient evidentiary material before the Court to enable it to carefully and fairly come to any conclusion about the adequacies of CASA's enforcement policies, procedures, systems or priorities for investigating civil aviation safety matters, in this case and more generally, particularly in relation to CASA's response to the non-compliance issue and the Mount Hotham Incident.

149. At paragraph 67 of CASA's submissions, it submitted (responding to the draft recommendations made orally by Mr Magowan at the close of the hearing):

CASA briefly responds to the recommendations, noting its submissions above as to each issue, and the limits on this Court's statutory function, particularly in relation to *Harmsworth* and broader "systemic" issues (see, above at [4] to [9]):

(a) **Communication by ATSB and CASA of the importance of checklist discipline.**[157] CASA simply acknowledges this is important, but otherwise does not understand what specific recommendation is being made. CASA is willing to assist this Court in response to further specific draft recommendations about the actual potential content of such communications to the aviation industry.

(b) **Communication by CASA and/or ATSB that to the extent that if a rudder trim function test is to be performed, such performance should occur prior to completing the checklist items and obviously not in substitution for the performance of the checklist items.** CASA acknowledges there was evidence to the effect of the possibility of Mr Quartermain having conducted a functional check on 21 February 2017, but otherwise does not understand what specific recommendation is being made, or how CASA is, in fact, to affect such communication. CASA is willing to assist the Coroner in response to further specific draft recommendations about the potential content of such communications to the aviation industry.

(c) **CASA should review its system of compliance and acquittal of non-compliance notices, and establish a formal system for the "proactive enforcement" of non-compliance notices.** This submission is without any proper evidentiary basis for the reasons outlined above, and is well outside the limits of this Court's statutory function in s 72(2) of the Coroners Act. Critically, there is an absence of any meaningful or useful evidence to assist the Court to understand what the relevant system was at the time, how it was intended to be applied and what changes might have been made to the system in the intervening years. It is also, frankly, grandiose in scope given that this Court examined but one event, rather than CASA's systems generally.

(d) **ASA ought to review its system for the determination of what matters are the subject of further investigation and formalise a system for the acquittal of preliminary or desktop assessments.** The same submission as above at [66(c)] is repeated.

(e) **CASA ought to establish a system to formally allocate responsibility for decision-making concerning**

investigation and escalation / non-escalation of investigations. The same submission as above at [66(c)] is repeated. At this point in CASA's submissions it is now trite, but there is no actual evidence of what system in fact already exists and how it relevantly functions in the context of CASA's regulatory activities.

(f) **CASA should give consideration to engaging an external auditor in relation to its system of investigations.** The same submission as above at [66(c)] is repeated. Moreover, CASA asks but rhetorically: Who's the proposed auditor? What specific auditing tasks (arising from factual findings reasonably open to be made) is that auditor to be engaged to perform? How regularly is the auditor to perform those (unidentified) tasks?

(g) **CASA should consider whether to mandate a rotation of "those providing [it] assessments" to eliminate a risk of familiarity between pilot and assessor.** The same submission as above at [66(c)] is repeated. It is, frankly, a most infirm basis to make such a far-reaching and consequential systemic recommendation (with potentially a need for legislative reform and possible budgetary impact) based solely on Mr Nishizawa's surmise and perception of Mr Quartermain in the IPC he conducted on 19 October 2015. CASA otherwise repeats its submissions about the procedural unfairness to Mr Smith which inheres in this baseless recommendation (see, above at [31]).

L. CONCLUSIONS

150. The Court provided one document incorporating the 'Scope of the Inquest' and 'Proposed Statement of Agreed Facts'("The Scope and Agreed Facts Document") to the parties before the inquest was commenced. There was no objection taken to the content of the Statement of Agreed Facts and I shall here deal with the content of that document as agreed between the parties as being accurate unless otherwise referred to and as augmented by the evidence.[125]

151. The ATSB Report was also made a part of the Brief.[126]

152. The ATSB Report concluded that:

[125] T.1-4.
[126] T.2.

(a) The aircraft's rudder trim (tab) was likely in the 'full nose-left' position at the commencement of the take-off rather than in a neutral position, aligned with the rudder as it ought to have been.

(b) Mr Quartermain was unaware of the position of the rudder trim tab.

(c) The position of the rudder trim tab adversely affected the aircraft's climb performance and controllability resulting in the Aircraft descending, colliding with the roof of the Retail Outlet Centre and coming to rest in an adjacent car park. The Aircraft was engulfed in fire and all occupants died.

153. I have read Mr Medway's statement dated 15 November 2021 and considered the ATSB response to its contents. Mr Medway did not give *viva voce* evidence. Mr Hoffmeister gave evidence in relation to the content of the ATSB report and presented a 'PowerPoint' presentation summarising its content and explaining some of its complexities. I found Mr Hoffmeister to be a thoughtful, careful, credible witness.[127]

154. I accept Mr Hoffmeister's evidence and the conclusions set out in the ATSB Report that the position of the rudder trim tab was, before take-off, 'full nose-left' adversely affecting the aircraft's climb performance and controllability resulting in the Aircraft descending, colliding with the roof of the Retail Outlet Centre and coming to rest in an adjacent car park.

155. The ATSB Report referred to Essendon Airport Control Tower staff hearing Mr Quartermain rapidly calling 'MAYDAY' seven times over the Aircraft radio very shortly after the Aircraft became airborne. Some two seconds after this transmission concluded and approximately 10 seconds after take-off the Aircraft collided with the Retail Outlet Centre. As much makes clear that Mr Quartermain was aware, at least very shortly after the aircraft became airborne that it was not flying as it should have and as he expected it would.

156. There was no evidence that the rudder trim tab was in the 'full nose-left' position as a result of any malfunction. I find that the rudder trim tab was in the 'full nose-left' position as a result of the manipulation of its control mechanism in the aircraft cockpit. Put another way, the rudder trim tab was found after the Accident to have been in the 'full nose-left' position because it had been put into that position by someone from

[127] T.84-148.

the cockpit rather than as a result of, for example, a malfunction of a component or components of the Aircraft or indeed the Accident itself.

163. I simply cannot determine precisely when the rudder trim tab was moved to the 'full nose-left' position. A finding that Mr Quartermain deliberately or inadvertently moved or left the rudder trim tab in that position would be a very serious adverse finding which as I explain here I am not inclined to make.[128]

164. The Aircraft moving to the left before it became airborne and then veering left after, as opposed to turning right when it became airborne is compelling evidence that the rudder trim tab was in the 'full nose-left' position at least at take-off. It is also clear that very shortly after the Aircraft became airborne Mr Quartermain became aware that it wasn't flying as he expected and, despite what I am certain were his very best efforts, he was unable to keep the Aircraft airborne.

157. Airport CCTV footage shows Mr Quartermain walking around the Aircraft on the morning of 21 February in all likelihood conducting a 'walk-around' pre-flight check. The proposition that the rudder trim tab had been left 'full nose-left' by someone who used the Aircraft before Mr Quartermain did this 'walk-around', someone moving the Aircraft or conducting maintenance on it, according to Mr Hoffmeister was 'unlikely'. There is certainly no evidence of this having occurred. But neither is there any evidence that it didn't. For example, there is no evidence that the rudder trim tab was correctly aligned when Mr Quartermain first entered the Aircraft. Mr Nishizawa gave evidence that had the rudder trim tab been in the 'full nose-left' position he would have expected Mr Quartermain to have noticed it if indeed he did conduct a 'walk-around' pre-flight check.

158. I accept that the CCTV footage of Mr Quartermain walking around the Aircraft depicts him conducting a 'walk-around' pre-flight check. Whilst it may be reasonably expected that if the rudder trim tab was then in the 'full nose-left' position, that Mr Quartermain would have noticed it, I am not prepared to base a finding on this expectation. Even if it was in the 'full nose-left' position and Mr Quartermain didn't notice it, properly conducted subsequent checks, as required by the Aircraft Manufacturer's Checklist (or the one nominated by CASA), would have revealed the misalignment before the Aircraft began its take-off roll. If the rudder trim tab was

[128] See *Briginshaw* above.

'full nose-left' and Mr Quartermain did undertake those checks, then he failed to notice that misalignment. If the rudder trim tab was not in the 'full nose-left' position when Mr Quartermain did his walk-around pre-flight check then, clearly he moved it to that position some time before take-off. In reaching this conclusion I am conscious of Mr Nishizawa's evidence and Mr Pantlin's evidence of Mr Quartermain having mistakenly used the wrong cockpit control device and in the past having not strictly complied with checklist requirements.

159. It is possible that, having undertaken a function test, Mr Quartermain erroneously left the rudder trim tab in the 'full nose-left' position. If he undertook this test when Mr Hoffmeister suggested that it would have been appropriate, then the four subsequent checks required by the check-list, properly conducted, would have identified the error and allowed Mr Quartermain to re-align the tab before take-off.

160. I cannot determine when the rudder trim tab was moved to the 'full nose-left' position or who moved it to that position.

161. The ATSB Report refers to CASA records revealing that it had conducted surveillance on Mr Quartermain's Air Operators Certificate on 43 occasions since it was issued, the last occasion being 5 November 2015 when 11 findings were identified, of which 9 were significant.

162. One of those findings, NCN 713808, referred to the operator not having a flight check system approval which was required for the B200 aircraft. The report refers to NCN 713808 being issued on 3 February 2016 and requiring a response within 30 days. Mr Quartermain responded to CASA, in December 2016, that,

> "*The currently approved CASA check lists for both Normal and Emergency Procedures will be used at all times* (Part Number 101-590010-157E). *Copies of checklists are readily accessible to pilots in the cockpit of all company aircraft and a copy is also available in the company reference library. Checklists are in a tabbed booklet format suitable for use on the pilot's knee and include tabbed emergency procedures at the back for easy access."*

163. The ATSB Report refers to CASA being satisfied with this response, intending to check the checklist in the aircraft and closing NCN 713808 in December 2016.

Mr Quartermain was not notified that the NCN had been closed and no approval was issued. It was subsequently discovered that Part Number 101-590010-157E was not the part number that described the relevant check-list. Further enquires made by ATSB revealed that no such checklist, nor the correct checklist had been purchased for the Aircraft at least by Mr Quartermain or Corporate Leisure Aviation. The ATSB report refers to the CASA nominated checklist and the correct checklist both requiring rudder trim to be checked five times before take-off.

113. If the checklist was in the Aircraft and it had been complied with, the checks undertaken were axiomatically ineffective - the rudder trim tab was at 'full nose-left' shortly before take-off.

114. The criticisms of Mr Quartermain's flying including those referred to in Mr Cheshire's and Mr Edwards' Desk-top Assessment and the subsequent Surveillance Report issued on 3 February 2016 undermine confidence in how Mr Quartermain managed Corporate Leisure Aviation and indeed his flying. The effect is that I am not prepared to conclude that even if the checklist was in the Aircraft on 21 February that Mr Quartermain would have utilised it effectively.

115. Checklists by their very nature are intended to, amongst other things, make sure that before an aircraft takes off any mistakes, errors or deficiencies in preparation are identified and corrected. The process of properly making those checks is aided by meticulous use of a 'checklist'. Either Mr Quartermain didn't conduct checks that would have alerted him to the rudder trim tab being 'full nose-left' before take-off, regardless of how it came to be in that position, or he didn't properly conduct those checks.

116. The Aircraft was destroyed by fire and the ATSB were unable to ascertain whether the checklist with the CASA nominated part number or the correct checklist was in the Aircraft on 21 February 2021 before the Accident. The acquittal or not of NCN 713808 (December 2016) may be proximate in time to the Accident although significantly my findings are such that even if the check-list, referenced by the correct manufacturer's part number was in the Aircraft on 21 February 2017, I am not satisfied that Mr Quartermain would have used it, or used it effectively. In such circumstances it cannot be said that its presence would have prevented the Accident.

117. I am unable to say whether the appropriate checklist, or indeed any checklist was in the Aircraft before take-off, but that is not necessarily seminal. The cause of the Accident was that Mr Quartermain was ignorant of the rudder trim tab being in the 'full nose-left' position shortly before take-off. Whilst there is no evidence of Mr Quartermain either stepping though a checklist before take-off, or of him not doing so, the cause of the Accident was that the necessary checks of the position of the rudder trim tab were not made or they were not properly made.

118. I note that in her supplementary statement dated 28 October 2021 Mrs Quartermain commented that her husband had not been himself for 2 – 3 years, she describes financial difficulties operating Corporate Leisure Aviation and Mr Quartermain becoming forgetful. She recounts incidents that caused her to be concerned about Mr Quartermain's physical and mental health. The statement describes some events said to have been 5 years prior to 2021. Their relevance is reduced by the effluxion of time and absent more they are not proximate to the Accident. Mrs Quartermain's statement also deals with things closer, in time, to the Accident including Mr Quartermain being forgetful, not as alert as he once was, perhaps having his mind taken up with worries about Corporate Leisure Aviation's financial situation, and how much sleep Mr Quartermain had overnight 20 – 21 February 2017. Mrs Quartermain refers to her husband as having loved flying but it having become a chore for him. He was, she said, just worn out.

119. Mrs Quartermain describes her husband being "…*up all night and was checking the weather site … and that he was up and down all night and wouldn't have had any sleep*" overnight 20 – 21 February 2021. Mrs Quartermain was unable to give *viva voce* evidence.

120. Mrs Quartermain's second statement was made some four years after the Accident. Between the accident and when she made the statement she had to deal with considerable distress. I want to be clear though, I am confident that Mrs Quartermain tried her best to provide an accurate account of her recollections but the effluxion of time and the stresses which she necessarily had to bear may have had some effect on the precise accuracy of her recollections.

121. Mrs Quartermain's concerns for her husband are poignant and testament to her care and regard for him. There is no evidence that any of Mrs Quartermain's concerns

were known to CASA before the Accident and in submissions CASA makes the point that they were unaware of many of the matters to which she referred.

122. I conclude that Mr Quartermain checked NAIPS and weather sites during the night as indicated. On the basis of the evidence, I am unable to say precisely how much sleep Mr Quartermain had overnight or if any lack of rest was a cause of the Accident.

123. The ATSB Report sets out that as at 21 February 2021 Mr Quartermain held a Class 1 Aviation Medical Certificate valid until 20 May 2017. The CASA report canvasses Mr Quartermain's heart surgery in July of 2016 and of him being advised as of 4 February 2017 that he could continue exercising the privileges of his licence.

124. The events at Mount Hotham in September 2015 and their 'investigation' are not proximate to the date of the Accident and I make no findings in relation to them. I have however included some comments in relation to them on the basis that such comments may contribute to public safety.

125. Ms Melissa Quartermain provided a statement to the Court dated 16 July 2021. That statement eloquently refers to her sympathy and empathy for the families of her father's passengers. The body of this Finding deals with the issues which Ms M Quartermain raised in her statement. She requests consideration of two 'safety changes':

(a) Mandatory retirement of pilots at 65 on the basis of the effect of age on cognition, and

(b) Mandatory requirement that all pilots over 60 be accompanied by a co-pilot or cadet-pilot.

126. I do not make recommendations in line with Ms Quartermain's suggestions but include them in this Finding for CASA's consideration.

M. FINDINGS

127. Pursuant to Section 67 of the Act I find that:

(a) The identity of:

(i) the deceased pilot was Maxwell Charles Quartermain born 18 November 1949;

(ii) the deceased passengers were;

(A) Greg De Haven born 25 July 1946 in California, United States of America,

(B) Glenn Alan Garland born 15 December 1956 in South Carolina, United States of America,

(C) John Washburn born 6 October 1949 in Iowa, United States of America, and

(D) Russell Munsch born 22 February 1955, in United States of America.

(b) Each of the deceased passengers and the pilot died as the result of multiple injuries received in an air-crash and that they each died in the circumstances set-out above.

N. COMMENTS

The Civil Aviation Safety Authority is a large Federal Government body with enormous responsibilities. Sometimes external examination of an organisation or a part of its operation can punctuate 'business as usual' and provide a new light by which the practical operation of carefully thought-out strategies, policies and procedures may be examined. CASA's 'occurrence procedure' may benefit from such new light, training of staff conducting desk-top surveillance tasks, their uses, parameters and the processes by which the issues being surveyed may be 'escalated' and may likewise provide benefit. Processes for monitoring pilot compliance with required CPIs and timely acquittal of NCNs together with sensitive auditing procedures might too be considered.

Assiduously promoting the operation of Aircraft by reference to approved Checklists and according to strict checklist discipline can only re-enforce public confidence and advance and foster safety. I accept that the evidence before this inquest is inadequate

for me to make explicit recommendations about these matters. Inquests are not unconfined, free ranging investigations but rather investigations legislatively confined to deal with deaths and their causes and circumstances. That said, sometimes Inquests hear of matters that may bear on public health and safety that are not necessarily strictly causative of the deaths. In such cases Coroners may take the opportunity to point up, possible matters for the consideration of organisations – as I have here. With this in mind I will make a broad recommendation that the Civil Aviation Safety Authority consider a number of matters. To be very clear I do not find that the matters to which I have referred in this section and the matters in relation to which I will make a recommendation to CASA were a cause of the deaths subject of this Inquest.

O. RECOMMENDATIONS

Pursuant to Section 72 of the Act, in the interests of promoting public health and safety and with the aim of preventing similar deaths I recommend that:

(a) CASA consider redoubling emphasis of the essential nature of check-list discipline especially to older pilots perhaps as a part of the increased obligations for more frequent IPCs borne by pilots older than 65.

(b) CASA consider promulgating explicit directions to the effect that if a rudder trim tab function test is undertaken as a part of pre-flight check that subsequently and prior to take-off the position of the rudder trim tab be checked on more than one occasion.

(c) CASA consider instigating a formal 'audit trail' for NCNs and their acquittal.

(d) CASA consider requiring pilots to have IPCs conducted by a variety of testers. The extent of variety of testers and time periods within which such variety is required may be best determined by CASA itself.

I direct that a copy of this Finding be provided to:

1.	Ms R De Haven	Mr De Haven's Senior Next of Kin
2.	Ms L Garland	Mr Garland's Senior Next of Kin
3.	Ms D Washburn	Mr Washburn's Senior Next of Kin
4.	Ms S Munsch	Mr Munsch's Senior Next of Kin
5.	Ms P Quartermain	Mr Quartermain's Senior Next of Kin

6.	Mr E Maitland	Maitland Lawyers
7.	Mr P Hornby	Australian Transport Safety Bureau
8.	Mr A Carter	Civil Aviation Safety Authority
8.	Ms L Attard	Gordon Legal
9.	Mr M McDonald	Hall and Wilcox Lawyers
10.	Senior Constable M Skahill	Coroner's Investigator

DARREN J BRACKEN
CORONER
Date: 28 October 2022