



IN THE CORONERS COURT
OF VICTORIA
AT MELBOURNE

Court Reference: COR 2016 1158

FINDING INTO DEATH WITH INQUEST

Form 37 Rule 60(1)

Section 67 of the Coroners Act 2008

Inquest into the Death of: QUOC HUONG VU

Findings of:	AUDREY JAMIESON, CORONER
Delivered on:	Tuesday, 23 October 2018
Delivered at:	Coroners Court of Victoria, 65 Kavanagh Street, Southbank
Hearing date:	14 November 2017
Police Coronial Support Unit:	Leading Senior Constable King TAYLOR
Appearances:	Mr Richard Royal of Counsel instructed by Shine Lawyers on behalf of Mrs Nghi Tam Ta (wife of Quoc Huong Vu).

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I, AUDREY JAMIESON, Coroner having investigated the death of QUOC HUONG VU

AND having held an inquest in relation to this death and the death of Ian Cook¹ on 14 November 2017

at Southbank

find that the identity of the deceased was QUOC HUONG VU

born on 28 December 1972

and the death occurred on 13 March 2016

at Yarrowonga, in the vicinity of Yarrowonga Airport, Yarrowonga, Victoria 3730

from:

1 (a) INJURIES SUSTAINED IN A LIGHT PLANE INCIDENT

in the following summary of circumstances:

On 13 March 2016, Quoc Huong Vu was a passenger in a weight shift microlight trike, “AirBorne”² Edge Trike XT912 Registration 32-8112, piloted by Ian Cook. The aircraft crashed into a paddock off Cahills Road in Yarrowonga, with fatal consequences for both men.

BACKGROUND CIRCUMSTANCES

1. Quoc Huong Vu (**Vu**)³ was 43 years of age at the time of his death. Vu was a Vietnamese man who lived in Mt Pritchard, New South Wales, with his family. He had a temporary two year visa and had applied for Australian residency.
2. Vu was married to Nghi Tam Ta, who was an Australian citizen, and he had a young son, Dang Hai Vu. At the time of his death, Vu was working as a professional cameraman and filming for the television program *Amazing Race Vietnam*.
3. Ian Cook (**Ian**)⁴ was a pilot who decided to pursue a passion for flying ultralight planes in October 2012. In 2013, He commenced flight lessons with Chief Flight Instructor (CFI) at Yarrowonga Flight School and Yarrowonga Aerodrome Manager Peter McLean

¹ Related case: COR 2016 1157.

² AirBorne WindSports Pty Ltd.

³ Counsel for Nghi Tam Ta indicated his family’s preference that Quoc Huong Vu be referred to as “Vu”. For consistency I have referred to him as “Vu” throughout the Finding, save where I have deemed it necessary to use his full name.

⁴ At the outset of the Inquest, Mrs Cook indicated her preference that her husband be referred to as “Ian”. For consistency I have referred to him as “Ian” throughout the Finding, save where I have deemed it necessary to use his full name.

(Mr McLean). During his training, Ian purchased Mr McLean's AirBorne Edge Trike⁵ XT912 Registration 32-8112. Ian was considered to be a competent pilot.⁶

SURROUNDING CIRCUMSTANCES

4. On Sunday 13 March 2016, Mr McLean hosted contestants from the television show *Amazing Race Vietnam* (ARV). The event had been pre-arranged through his acquaintance Mr William Williams (Mr Williams). The arrangement did not involve a formal contract and no payment or gratuity was obtained by Mr McLean⁷ to take the ARV contestants up in his microlight aircraft. The arrangement included that the contestants would be filmed by Vu and fellow ARV cameramen Pham Trung Dung.
5. Prior to the ARV crew and contestants arriving at the Yarrowonga Aerodrome, Mr McLean had organised a safety management system. This involved placing barricades outside the hangar to prevent people inadvertently straying into the path of an aircraft. He also obtained the assistance of some pilot friends to help out with safety on the ground.⁸
6. Ian had agreed to be one of the Safety Marshals for the event. Each Safety Marshal was equipped with a radio so that they could contact Mr McLean at any time. They had been briefed by Mr McLean to communicate with him if they identified any hazard including if they sighted any "Dust Devils"⁹ which could affect his landing or take-off. The Safety Marshals were also expected to maintain safe distances between the cameramen on the ground and the runway, as well as supervise ARV crew and contestants.
7. At approximately 12.30pm, the crew from ARV arrived at the Aerodrome and conveyed to Mr McLean that they wanted four contestants to be taken up in a weight shift microlight trike, fly a circuit around the Yarrowonga runway and land on the same runway. Mr McLean was to take each contestant up in his aircraft which had the capacity for a pilot and a passenger. Mr McLean liaised with the crew and provided briefings to the contestants.¹⁰

⁵ A "Trike" is a microlight aircraft.

⁶ Statement of Peter McLean dated 16 May 2017 – Coronial Brief @ p 12.22 – 12.24.

⁷ Ibid @ p 18.1.

⁸ Statement of Peter McLean dated 16 May 2017 – Coronial Brief @ p 18.1.

⁹ A **dust devil** is a strong, well-formed, and relatively long-lived whirlwind, ranging from small (half a meter wide and a few meters tall) to large (more than 10 meters wide and more than 1000 meters tall). The primary vertical motion is upward. Dust devils are usually harmless, but can on rare occasions grow large enough to pose a threat to both people and property – referenced from Wikipedia.

¹⁰ Statement of Peter McLean dated 13 March 2016 – Coronial Brief at p 15.

8. Mr McLean took Vu up to obtain aerial footage of the local area prior to taking the contestants up in his aircraft. Subsequently, an ARV organiser conveyed that they wanted to have footage of the contestants flying and asked Mr McLean if there was another pilot and aircraft available for these purposes. Mr McLean initially responded in the negative but Ian volunteered to take Vu in his aircraft to film the contestants as requested by ARV. Mr McLean had some reservations but he believed Ian, who had 11 months experience as a pilot in command, to be capable of flying in the prevailing conditions; it was the hottest part of the day and there were some Dust Devils in the vicinity.
9. Lawrence Thompson (**Mr Thompson**) remained on the ground as a Safety Marshal. He stood one-third of the way along the active runway for the day, Runway two-three,¹¹ and ten metres from the edge of the runway.
10. At 3.25pm, Ian took off in his AirBorne Edge Trike with Vu as a passenger. Mr McLean took off with an ARV contestant soon afterward. Ian's aircraft was observed flying around the vicinity of the Yarrowonga Aerodrome. Mr McLean did not see Ian's aircraft again until after he had landed his own aircraft. He was walking back out of his hangar to get the next contestant when he observed Ian's aircraft travelling in a North West direction over the hangar. Mr McLean thought that Ian's aircraft was flying a little low but he was not concerned.¹²
11. At, or about the same time, Mr Thompson made radio contact with Ian informing the pilot that there was a Dust Devil over the end of Runway 05 located at the west end of the Aerodrome. Ian responded that he had seen it and thanked Mr Thompson.
12. Ian was seen to fly safely around the Dust Devil and was adjacent to Runway 05-23 as if preparing to land. Partway down the runway, Ian turned his aircraft to the left, traveling north over the Aerodrome. He turned left again before the taxiing area, resulting in the aircraft traveling in a westerly direction. At this point, Mr Thompson also thought Ian was flying his aircraft unusually low as it continued toward the sole tree in a paddock adjacent to the Aerodrome.¹³

¹¹ "Two three" refers to the compass point (230) and 180 degrees the other way is 05 thus reference to Runway "05".

¹² Statement of Peter McLean dated 16 May 2017 – Coronial Brief @ p 18.1.

¹³ Statement of Lawrence Thompson dated 13 March 2016 – Coronial Brief @ p 33, Exhibit 1.

13. Pham Trung Dung filmed Ian's aircraft from the ground, flying approximately 50 metres overhead. He briefly panned away but returned to filming the aircraft just before it began to rapidly descend.¹⁴

14. At approximately 3.30pm, Ian's AirBorne Edge weight shift microlight trike crashed into the terrain in a paddock adjacent to the Aerodrome; approximately 500 metres in a westerly direction. A number of people ran to the site while others used vehicles. Emergency Services were contacted, however it was evident that neither Ian nor Vu had survived the impact with the terrain.

JURISDICTION

15. Quoc Huong Vu's death was a reportable death under section 4 of the *Coroners Act 2008* ('the Act'), because it occurred in Victoria and was considered unexpected, unnatural or to have resulted, directly or indirectly, from an accident or injury.

PURPOSE OF THE CORONIAL INVESTIGATION

16. The Coroners Court of Victoria is an inquisitorial jurisdiction.¹⁵ The purpose of a coronial investigation is to independently investigate a reportable death to ascertain, if possible, the identity of the deceased person, the cause of death and the circumstances in which death occurred.¹⁶ The cause of death refers to the medical cause of death, incorporating where possible the mode or mechanism of death. For coronial purposes, the circumstances in which death occurred refers to the context or background and surrounding circumstances, but is confined to those circumstances sufficiently proximate and causally relevant to the death and not merely all circumstances which might form part of a narrative culminating in death.¹⁷

17. The broader purpose of coronial investigations is to contribute to the reduction of the number of preventable deaths through the findings of the investigation and the making of recommendations by Coroners, generally referred to as the 'prevention' role.¹⁸ Coroners are also empowered to report to the Attorney-General on a death; to comment on any

¹⁴ Statement of Pham Trung Dung dated 14 March 2016 – Coronial brief @ p 19. Footage of the aircraft collision with ground.

¹⁵ Section 89(4) *Coroners Act 2008*.

¹⁶ Section 67(1) of the *Coroners Act 2008*.

¹⁷ See for example *Harmsworth v The State Coroner* [1989] VR 989; *Clancy v West* (Unreported 17/08/1994, Supreme Court of Victoria, Harper J).

¹⁸ The "prevention" role is explicitly articulated in the Preamble and Purposes of the Act.

matter connected with the death they have investigated, including matters of public health or safety and the administration of justice; and to 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.¹⁹ These are effectively the vehicles by which the prevention role may be advanced.²⁰

18. It is not the Coroner's role to determine criminal or civil liability arising from the death under investigation. Nor is it the Coroner's role to determine disciplinary matters.
19. Section 52(2) of the Act provides that it is mandatory for a Coroner to hold an Inquest into a death if the death or cause of death occurred in Victoria and a Coroner suspects the death was as a result of homicide, or the deceased was, immediately before death, a person placed in custody or care, or the identity of the deceased is unknown.
20. In this matter, I exercised my discretion to hold an Inquest; pursuant to section 52(1) of the Act, Coroners have absolute discretion as to whether or not to hold an Inquest. However, a Coroner must exercise the discretion in a manner consistent with preamble and purposes of the Act.
21. In deciding whether to conduct an Inquest, a Coroner should consider factors such as (although not limited to), whether there is such uncertainty or conflict of evidence as to justify the use of the judicial forensic process; whether there is a likelihood that an Inquest will uncover important systemic defects or risks not already known about and, the likelihood that an Inquest will assist to maintain public confidence in the administration of justice, health services or other public agencies.

STANDARD OF PROOF

22. All coronial findings must be made based on proof of relevant facts on the balance of probabilities. In determining whether a matter is proven to that standard, I should give effect to the principles enunciated in *Briginshaw v Briginshaw*.²¹ These principles state that in deciding whether a matter is proven on the balance of probabilities, in considering the weight of the evidence, I should bear in mind:

¹⁹ See sections 72(1), 67(3) and 72(2) of the Act regarding reports, comments and recommendations respectively.

²⁰ See also sections 73(1) and 72(5) of the Act which requires publication of coronial findings, comments and recommendations and responses respectively; section 72(3) and (4) which oblige the recipient of a coronial recommendation to respond within three months, specifying a statement of action which has or will be taken in relation to the recommendation.

²¹ (1938) 60 CLR 336.

- the nature and consequence of the facts to be proved;
- the seriousness of any allegations made;
- the inherent unlikelihood of the occurrence alleged;
- the gravity of the consequences flowing from an adverse finding; and
- if the allegation involves conduct of a criminal nature, weight must be given to the presumption of innocence, and the court should not be satisfied by inexact proofs, indefinite testimony or indirect inferences.

23. The effect of the authorities is that Coroners should not make adverse findings against or comments about individuals, unless the evidence provides a comfortable level of satisfaction that they caused or contributed to the death.

INVESTIGATIONS PRECEDING THE INQUEST

Identity

24. Circumstantial evidence obtained at the scene of the incident indicated that the deceased was Quoc Huong Vu.
25. The identity of the deceased was conclusively determined through scientific means. The DNA profile of a child of Quoc Huong Vu was compared to his own to evaluate parentage. Ashil Tushar Davawala, Scientist of Molecular Biology at the Victorian Institute of Forensic Medicine (VIFM) prepared a Report of Scientific Testing dated 22 March 2016 which *inter alia* stated that the results of the profiling demonstrated that the probability of parentage was greater than 99.99%, that is that the deceased was the father of the sample provider.
26. A Form 8, Determination by a Coroner of Identity of Deceased²² being Quoc Huong Vu, whose date of birth is 28 December 1972, was completed by Coroner Caitlin English on 23 March 2016.
27. No further investigation in respect of identity was required.

²² Section 24 *Coroners Act 2008*.

Medical Cause of Death

Post mortem examination

28. Dr Matthew Lynch, Forensic pathologist at VIFM performed an external examination of the body of Quoc Huong Vu, reviewed a post mortem computed tomography (CT) scan and the Victoria Police Report of Death for the Coroner, Form 83. Dr Lynch reported that his external examination and the CT scan identified multiple injuries and multiple fractures.

Toxicology

29. Toxicological analysis of blood did not detect the presence of alcohol or any common drugs or poisons.

Forensic pathology opinion

30. Dr Lynch ascribed the cause of Quoc Huong Vu's death to injuries sustained in a light plane incident.

Recreational Aviation Australia Investigation

31. On 13 March 2016, Recreational Aviation Australia (RAAus) were notified of the aircraft crash resulting in the deaths of Vu and Ian. On 14 March 2016, RAAus Accident Consultant and Technical Manager Darren Barnfield (Mr Barnfield) attended the site of the incident to assist Police with their investigation. At the site, Mr Barnfield did an initial walk through to assess the situation, made hand-written notes, took photographs of the scene and of the aircraft. He also used a drone to take aerial shots of the scene and inspected the aircraft.

32. Mr Barnfield completed a statement on the same day wherein he stated that, based on the condition of the aircraft and statements taken from eye witnesses, he had *formed the opinion that the aircraft was in serviceable condition during the flight and that the incident was not due to mechanical failure of the airframe or engine.*²³

33. On 13 October 2016, Mr Barnfield completed his report in respect of his limited scope, fact gathering investigation of the incident.²⁴

²³ Statement of Darren Barnfield dated 14 March 2016 – Coronial Brief @ p33.

²⁴ Recreational Aviation Australia (RAAus) Accident Consultant Report dated 13 October 2016 - Coronial Brief @ pp 143 - 200

34. Information obtained from the RAAus database reflected that Ian had been a member of RAAus since 9 December 2014. He obtained his pilot certificate on 6 April 2015 and at the time of the incident Ian's medical declaration was current. A Biennial Flight review had been completed on 7 December 2015 and Ian had a total of 86 hours flying as a pilot in command of a weight shift microlight trike as at 13 March 2016. He had endorsements to his pilot certificate in cross country, human factors, passenger carrying and RAAus flight radio.
35. Details of the aircraft were obtained from the RAAus database which reflected that Ian's AirBorne Edge Trike XT912 Registration 32-8112, was manufactured in 2012 by AirBorne Windsports Pty Ltd in NSW. It was first registered with RAAus on 16 April 2012 and had a total of 431.4 hours-time in service with approximately 1400 landings.
36. The weather on 13 March 2016 was reported as being acceptable for the flight. Mr McLean reported the presence of Dust Devils at the time of aircraft operations, prior to Ian's flight.
37. On 14 March 2016, Mr Barnfield inspected the damage to the aircraft²⁵ and the associated wreckage debris in the vicinity of the collision with terrain. Mr McLean was present in his capacity as CFI. On inspecting the engine, Mr Barnfield reported that he found evidence that it was producing power when the aircraft impacted with the terrain. The evidence was supported by his observations that the propeller blades were found detached from the base of the propeller hub and were thrown in various directions on impact. Consequently, Mr Barnfield concluded that engine failure was not a primary cause of the incident.
38. With the assistance of RAAus Assistant Operations Manager Neil Schaefer (**Mr Schaefer**), Mr Barnfield reviewed the camera footage taken by Vu while he was a passenger in Ian's aircraft.²⁶ Mr Schaefer and Mr Barnfield did not know what relevance the footage they were viewing had to the flight sequence immediately before the impact event, although they did comment that the aircraft was initially in stabilised flight and all operations appeared normal.
39. At point 0.22 time stamp on the recording, there is clear evidence of convective activity closely adjacent to the aircraft; this was attributable to the Dust Devils. The aircraft

²⁵ Mr Barnfield is also a Licensed Aircraft Maintenance Engineer.

²⁶ Vu's camera was significantly damaged in the impact with terrain and it is believed that not all of the footage he shot was recoverable.

headed toward a point approximately 200 metres to the north (right) of the convective activity.

40. Between time stamp 0.22 to 0.27 on the recording, there is indication that the aircraft is reacting to the convective activity; the report maker commented that the height of the manoeuvring observed was extremely low and not conducted in accordance with Civil Aviation Regulation (CAR) 157 or Civil Aviation Order (CAO) 95.32 paragraphs 7.1 (b), 8.1 and 8.2.
41. Review of the ground based footage, filmed by ARV cameraman Pham Trung Dung, also provided evidence of convective turbulence and evidence that this was communicated to Ian by ground operators. Ian is recorded acknowledging and understanding the nature of the communication. Mr Barnfield commented that the flight path at the time of this communication was consistent with circuit joining requirements, although the aircraft *'was substantially lower than regulatory and recommended heights.'*²⁷
42. At time stamp 00.40 on the ground based footage there is an indication of additional power being applied which Mr Barnfield reported would be consistent with required actions to maintain height.
43. Between time stamp 01.02 and 01.06, Mr Barnfield reports that there is movement of the aircraft that could be consistent with an unbalanced turn. However, he states that it was not significant and could be related to convective (rising) air under the left wing of the aircraft.
44. Between time stamp 01.08 and 01.14, Ian's aircraft moved out of frame but engine sounds can still be heard. Mr Barnfield states that the engine pitch and tone remains constant during this period.
45. At time stamp 01.14, Ian's weight shift microlight trike comes back into frame at approximately tree height. According to Mr Barnfield's analysis, the aircraft *'rolled and pitched (possibly inverted) then impacted with the ground. Audio indicates no significant change in engine tone or pitch at impact.'*²⁸
46. Consequent upon reviewing the recovered aerial footage filmed by Vu and the ground footage filmed by Pham Trung Dung, Mr Barnfield reported that it was only moments

²⁷ RAAus Accident Consultation Report dated 13 October 2016 – Coronial Brief @ p 159.

²⁸ RAAus Accident Consultation Report dated 13 October 2016 – Coronial Brief @ p 159.

after Ian received the radio communication about the convective turbulence when *'the aircraft was observed in a nose down high angle of attached altitude that was non-recoverable from the height the aircraft was operating.'*²⁹

Conduct of my investigation

47. The investigation and the preparation of the Coronial Brief was undertaken by Leading Senior Constable (LSC) Janis McMillan on my behalf.

INQUEST into the deaths of Quoc HUONG VU and Ian COOK

48. I was assisted by LSC King Taylor of the Police Coronial Support Unit.

Issues Investigated at the Inquest

49. I specifically limited the scope of my Inquest to seek clarification on a number of issues, including:

- a. The original arrangement between Mr McLean and Mr Williams to host the *Amazing Race Vietnam*;
- b. Pre-event planning by Mr McLean; and
- c. How the aircraft collision into terrain may have occurred.

Viva voce evidence at the Inquest

50. *Viva voce* evidence was obtained from the following witnesses:

- Chief Flight Instructor at Yarrowonga Flight School and Yarrowonga Aerodrome Manager **Peter McLean**
- Safety Marshal **Lawrence Thompson**

The arrangement between Mr Williams and Mr Mclean

51. Mr McLean stated that Mr Williams was an acquaintance and a businessman from Sydney who would bring Vietnamese business people to Yarrowonga to show them the area. Mr McLean would fly some of these business people in his aircraft around the local area.

52. Mr Williams and Mr McLean arranged for the Yarrowonga Aerodrome to host ARV contestants and allow them the opportunity to fly by a couple of telephone calls which

²⁹ RAAus Accident Consultation Report dated 13 October 2016 – Coronial Brief @ p 161.

occurred a few days before 13 March 2016.³⁰ Mr McLean and Mr Williams discussed that all the contestants would be doing was a circuit and Mr McLean would make it look like they were flying the aircraft.

53. The flight was *'just one small portion'* of what the contestants had planned for that day *'so they were very time critical on what they were doing.'*³¹ There were no details provided or confirmed in writing and no written agreement between the two men. Mr McLean said that a few days' notice was plenty of time for him to organise the event at the Aerodrome.

54. Mr McLean stated that all of his plans for the event revolved around him being the only pilot available on the day for the ARV contestants. His senior instructor, another pilot, was not available to be at the Aerodrome in Yarrawonga for the event. Mr Mclean stated:

*...the whole basis of this thing was to be done around myself flying four contestants, four six-minute flights and that was it. There was no – there was no idea of taking a second cameraman up. We didn't have the aircraft, we didn't have the pilots available for that.*³²

55. Mr McLean said that, after the fatal incident, he had a conversation with Mr Williams which confirmed his belief that ARV had been told he would be the only pilot available to them.³³

56. During the Inquest, it was not entirely clear how Mr Williams came to be asking Mr McLean to host the ARV event at the Yarrawonga Aerodrome. Consequently, I indicated at the close of the *viva voce* evidence that I would endeavour to obtain a statement from Mr Williams.

Pre-event planning

57. Mr McLean stated that the first thing he attended to in preparation of the event was his *'Threat Error Management System'* where he would *'look at the threats, the errors that could be made and how to manage it all.'*³⁴

³⁰ Transcript of Proceedings (T) @ p 42.

³¹ T @ p 42.

³² T @ p 52.

³³ T @ p 47.

³⁴ T @ p 43.

58. Mr McLean said he had checked the weather forecast for 13 March 2016 and it looked reasonable. He knew it was not going to be a very heavy day at the Airfield; *'It was just a normal day'*.³⁵ He had asked a *'few friends if they could help out with just managing the cameramen'* as he did not want people wandering around on the Aerodrome.
59. Mr McLean had asked *'Laurie, Ingo and Ian'*³⁶ and a few others turned up on the day so he gave *'each of them tasks to look after and make sure that nobody went past certain areas or did certain things.'*³⁷ He gave each volunteer a personal briefing. He did not hold a joint meeting.³⁸ Mr McLean said that the four contestant flights was a very simple operation,³⁹ technically they were not doing any flying as he had control of the aircraft at all times.⁴⁰
60. In preparation for the day, Mr McLean had placed barricades in front of his hangar to stop the ARV contestants and the group of people accompanying them, from straying onto the taxiing pathway or into a live propeller.⁴¹ He had also taken one of the cameramen for a flight earlier in the day⁴² so he could get footage of the airport, the local area and where the contestants were going to be doing their circuit.
61. Mr Thompson knew both Ian and Mr McLean well. He often shared motel rooms with Ian when going on flying trips and Mr McLean had taught him to fly. Mr Thompson first heard of the ARV event on either the Friday prior to the event or the Saturday morning. Mr McLean had asked him if he was interested and he responded that he was more than happy to volunteer.⁴³ Mr Thompson said he did not really know what the plan for the day was except that there were four ARV contestants for the *Amazing Race* and that they were to take turns⁴⁴ flying at the Aerodrome. There was not a group discussion with the other volunteers.

³⁵ T @ p 44.

³⁶ "Laurie" is Lawrence Thompson, "Ingo" is Ingo Schweda and "Ian" is Ian Cook.

³⁷ T @ p 43.

³⁸ T @ p 66, 76.

³⁹ T @ p 44.

⁴⁰ T @ p 45.

⁴¹ T @ p 45.

⁴² T @ p 46, 67.

⁴³ T @ p 10.

⁴⁴ T @ p 15.

62. Mr Thompson believed that Mr McLean just spoke to each volunteer individually and he did not see any written plan or risk assessment.⁴⁵ Mr McLean told Mr Thompson that the ARV wanted a cameraman near the runway. He asked Mr Thompson to take care of the cameraman and ensure they did not get too close to the runway. Mr Thompson agreed to take on this responsibility as a Safety Marshal at the ARV event. On the day, he *‘escorted the cameraman⁴⁶ out to the runway and made sure that he did not go any closer than ten metres whilst the aircraft was taking off or coming into land.’⁴⁷*
63. Mr Thompson believed that each of the contestants would, in the space of approximately six to eight minutes, take off, fly a circuit and come in and land the aircraft while Mr McLean sat behind the contestant with his hands in reach of the controls *‘just to make sure everything went smoothly.’⁴⁸*
64. Mr McLean began to brief the first contestant on safety issues, the controls and their role during the flight when one of the ARV crew insisted that another aircraft be available for a cameraman, Vu, to film the contestants flying. Mr McLean responded that this was not possible as he did not have another qualified pilot to undertake that task. Ian however volunteered and went to retrieve his weight shift microlight trike soon afterward.
65. As Vu got into the back of Ian’s aircraft, Mr Thompson spoke to both Ian and Vu, advising Ian that he should not take any risks and telling Vu to get his camera strap secured around his shoulder as he did not want the camera to fall out of the aircraft.⁴⁹
66. Mr Thompson did not know if Ian had the necessary qualifications to take up the cameraman but was mindful that Mr McLean had stated to the ARV crew that he did not have anyone else available. He said that Ian was *‘the kind of bloke that if anybody needed a hand with their trike he was always in there to help them... (he) couldn’t do enough for people.’⁵⁰*

⁴⁵ T @ p 15.

⁴⁶ Pham Trung Dung.

⁴⁷ T @ p 10.

⁴⁸ T @ p 12.

⁴⁹ T @ pp 13-14.

⁵⁰ T @ p 15.

How the aircraft collision into terrain may have occurred

67. Ian took off with Vu just prior to Mr McLean. There was no conversation between Ian and Mr McLean prior to take-off although radio contact was possible between the two pilots. Mr McLean stated that there was no need. While both aircraft were in the air Mr McLean radioed Ian to ask him where he was as he could not see his aircraft. Ian responded that he was on Mr McLean's left.
68. Mr Thompson said that he observed two Dust Devils over the Aerodrome at around the time of the incident. He estimated that they were approximately two metres in diameter and probably a couple of hundred metres tall⁵¹ or around 300 feet high.⁵² As best as he could recollect, the Dust Devils were side-by-side and approximately 50 to 80 metres apart. Ian avoided them by flying in the back of them and flying downwind.⁵³
69. As Ian flew to avoid the Dust Devils, Mr McLean landed his aircraft. Mr Thompson radioed Ian and asked if he also intended to land and Ian responded in the affirmative. When this exchange occurred, Mr Thompson said *'(Ian) joined downwind and half-way to two-thirds of the way down the runway, he's done a hard left hand turn, flung straight onto the top of me and the ground camera crew and then he has done another left hand turn, upwind, to the west'*.⁵⁴
70. Mr Thompson said he had not seen Ian fly like that before. He was clearly concerned about what he was observing at the time and while giving his *viva voce* evidence he attempted to describe and demonstrate that the wind was dipping the aircraft from side to side.
71. During the Inquest, Mr Thompson expressed a theory⁵⁵ that Vu may have moved from one side of the weight shift microlight trike to the other, resulting in the corresponding side of the aircraft dipping with the weight of his camera. He also suggested that, if the camera was held out to the side of the aircraft, the imbalance the device created may have caused

⁵¹ T @ p 16.

⁵² T @ p 18.

⁵³ T @ p 18.

⁵⁴ T @ pp 19-20.

⁵⁵ T @ pp 20-21 – Mr Thompson informed me that he had done his own experiment (after the fatal incident) by merely placing one arm out the side of his aircraft and noting how easily the aircraft shifted in the direction to the outside imbalance.

the pilot to over-correct as the camera was brought back into the cabin.⁵⁶ He speculated that, from the position of the aircraft flying low over the hangars, the cameraman could have been attempting to film the contestant in Mr McLean's aircraft as it was taxiing back to the hangar.

72. Mr McLean had not heard the conversation between Mr Thompson and Ian about the presence of a Dust Devil⁵⁷ and elaborated on his first statement about the weather conditions for flying:

*The difference with that particular day with those dust devils, they were very hard to see and that's why I really wanted people on the ground because I needed eyes. From the air you couldn't see them. From the ground you can.*⁵⁸

73. Mr McLean further stated that, when he saw Ian fly over the Aerodrome, he noticed that Ian 'was moving his bar probably a little more than normal ...and I put that down to maybe a bit of thermal activity.'⁵⁹

74. Mr Mclean did not see Ian's aircraft collide with the terrain. Despite talking to people after the incident, he had 'no idea what occurred'.⁶⁰

75. During the Inquest, Mr Thompson and Mr McLean referred to the over representation of weight shift microlight trikes in fatalities.

76. Mr Thompson said that:

*Whenever there's been a fatal accident and there's been an AirBorne aircraft with the arrow wing on it...different pilots you sit around with and talk about and they seem to think that there is an issue with it and they stall if you get too low on air speed. But as I said before, I'm not an aeronautical engineer but most of the recent fatalities have been in that particular aircraft, the combination that I know of.*⁶¹

⁵⁶ Mr Thompson later agreed that from his experience he could say that this type of aircraft is easily unbalanced or can be more difficult to keep balanced – T @ p37.

⁵⁷ T @ p 56.

⁵⁸ T @ p 57.

⁵⁹ T @ p 68.

⁶⁰ T @ p 58, 60, 63.

⁶¹ T @ p 27.

77. Mr McLean also explained the risk of incipient spin when operating weight shift microlight trikes:

*...my personal opinion it's a design flaw with the AirBorne Arrow. I had many people ring me in the early days of the Arrow who were scared of the wing.*⁶²

78. Mr McLean agreed with Counsel Assisting that the arrow wing type of aircraft being flown by Ian, can become unstable when flown at low speed.⁶³

79. The Inquest was adjourned *sine die*.

Statement from William Williams

80. On 22 December 2017, I received a statement from Mr William Williams (**Mr Williams**). Mr Williams stated that he had known Mr McLean for at least eight years. During that time, he had taken Vietnamese visitors to Yarrowonga Airport for Trial Instructional Flights on several occasions.

81. Mr Williams said that he had previously lived in Vietnam and that he was friends with Mr Binh, the Director of the ARV. Mr Williams said that Mr Binh asked him about activities that the ARV contestants could undertake. Mr Williams conveyed to Mr Binh that the ARV contestants could travel to Yarrowonga to do an instructional flight with Mr McLean. Although he could not be definitive, Mr Williams believed that he discussed the idea with Mr McLean approximately one week before the event.

82. There was no written agreement between Mr Mclean and the ARV. According to Mr Williams, Mr McLean was not to receive payment from the ARV.

83. Mr Williams believed that senior members of the ARV arrived in Yarrowonga approximately three days prior to the contestants and production team. During this time, the ARV Senior members had a meeting with Mr McLean to discuss the format for the flying and arrangements for filming at that time.

84. Mr Williams was not present at the meeting but was informed that it was successful. He stated that Mr McLean and the ARV senior members agreed that one person from each pair of contestants would go on a flight.

⁶² T @ 62.

⁶³ T @ p 53.

85. On 13 March 2016, Mr Williams arrived at the Yarrawonga Aerodrome ahead of the ARV contestants and production team. He departed the Aerodrome when filming began in order to attend the Mulwala Water Ski Park. The ARV contestants were scheduled to go to the Ski Park after their flights. Mr Williams was at the Ski Park when he received notification of the aircraft crash.

POST INQUEST INVESTIGATION

Coroners Prevention Unit Research

Request for Assistance

86. With the aim of providing certainty to the anecdotal evidence of Mr Thompson and Mr McLean, I requested the Coroners Prevention Unit (CPU)⁶⁴ undertake research on my behalf to inform me and support my Findings.
87. I requested that the CPU provide me with data to determine whether weight shift microlight trikes were over represented in fatal aircraft collisions. I also requested that the CPU provide me with data to examine, in further detail, the anecdotal evidence that AirBorne brand aircraft are involved in a disproportionately high number of Australian weight shift microlight trike fatalities.
88. I also requested that the CPU provide me with details of any previous recommendations made by Coroners in relation to these type of aircraft and whether there have been any changes to the manufacturing or any improvements to the design of weight shift microlight trikes as a consequence of investigations into fatalities associated with them.

CPU Report

89. On 29 June 2018, the CPU provided me with a copy of their final Report. I have appended the CPU's written advice to this Finding; the following is a brief overview of what was found.
90. The CPU's first step in assisting me, was to conduct a national search for fatal aircraft collisions involving weight shift microlight trikes which occurred in Australia between 2000 and the present. The CPU searched across Coroners Court of Victoria internal databases, the National Coroners Information System (NCIS) and the Australian

⁶⁴ The Coroners Prevention Unit (CPU) was established in 2008 to strengthen the prevention role of the coroner. The unit assists the coroner with research and formulation of prevention recommendations, as well as assisting in monitoring and evaluating the effectiveness of the recommendations.

Transport Safety Bureau (ATSB) National Aviation Occurrence Database, and identified 26 such fatal collisions. AirBorne brand weight shift microlight trikes were involved in 20 (76.9%) of these 26 fatal collisions.

91. While the CPU search indicated AirBorne brand aircraft were involved in a substantial majority of Australian fatal weight shift microlight trike collisions, the CPU advised it was not possible to conclude they were disproportionately represented: this would require further information not available to the general public, such as the composition by brand of the Australian weight shift microlight trike fleet, and the annual logged hours of flying time by weight shift microlight trike brand.
92. At my direction, the CPU wrote to the ATSB; the organisation legislatively responsible for investigating civil aviation incidents. I also directed the CPU to write to the Hang Gliding Federation of Australia (HGFA) and RAAus to seek their assistance in interpreting the collision statistics. HGFA and RAAus are the two self-administering organisations to which the Civil Aviation Safety Authority [CASA] has delegated responsibility for administering regulation of weight shift microlight trikes and investigating incidents involving these aircraft.
93. The ATSB response, signed by Chief Executive Officer Greg Hood, was lengthy but unfortunately of limited utility. Mr Hood indicated that the ATSB gathers a range of data on aircraft accidents and incidents, however does not have data enabling it to establish whether AirBorne brand aircraft were disproportionately involved in weight shift controlled aircraft accidents in Australia.
94. The HGFA and RAAus responses, from Chief Operating Officer Brett Coupland and Chief Executive Officer Michael Linke respectively, were far more helpful. Both advised that the AirBorne brand aircraft account for the clear majority of registered weight shift controlled aircraft in Australia, and their representation among fatal collisions is likely a reflection of this. Both concluded that their organisations have no concerns about the relative safety of AirBorne brand aircraft; nor did they believe weight shift controlled aircraft are involved in disproportionately more accidents and incidents than other aircraft types.
95. Finally, I asked the CPU to review the Coronial findings - where available - in the 26 fatal weight shift microlight trike collisions, to identify any comments or recommendations that might be relevant to my consideration of the issues in the deaths of Ian Cook and Vu.

96. Among the Coronial material identified, a recurring theme was Coroners' concerns about how investigations into light and microlight aircraft collisions are undertaken, and particularly the issues inherent in the ATSB delegating such investigations to self-administering organisations that do not always have the expertise and funding and equipment to conduct proper investigations.

97. I noted with interest a Queensland finding into a 2005 death, where the Coroner recommended that: *'[...] the ATSB identify and investigate all fatalities and serious accidents involving the AirBorne Edge aircraft. There is sufficient nexus between the incidents to warrant a review of the AirBorne Edge aircraft.'*⁶⁵

Further Submissions

98. At my direction, the CPU provided AirBorne Aircraft WindSports Pty Ltd with a copy of the Report. I requested that AirBorne inform me of any identification of safety concerns and correspondent actions taken in relation to the Arrow microlight aircraft.

99. I also provided the Report to parties to the Inquest: Mrs Cook and Shine Lawyers on behalf of Nghi Tam Ta. I informed them that I hoped to finalise the investigation, subject to the content of any written submissions.

100. I requested that written submissions be provided by close of business on 6 August 2018.

AirBorne Aircraft

101. On 2 August 2018, AirBorne Director Rick Duncan provided me with a four page document in response to the issues raised in the CPU Report. The following constitutes a summary of the issues addressed.

102. Mr Duncan stated that the HGFA and RAAus did not indicate an issue with AirBorne microlight aircraft. Mr Duncan wrote, as HGFA and RAAus are the relevant investigating bodies, *'we must assume that the accident investigators, with all information on hand have no safety concerns with the Airborne Arrow and Airborne aircraft in general'*.

103. Mr Duncan stated that comments about AirBorne aircraft which did not come from the HGFA or RAAus investigators were unlikely to be based on sufficient information to *'make a negative judgement'*.

⁶⁵ QLD COR 2005 2594.

104. AirBorne's Director endorsed the HGFA's statement that a pilot should receive instructor familiarisation flights before piloting any high-performance Weightshift microlight wing.⁶⁶

105. Mr Duncan strongly agreed with RAAus' intention to standardise training methods:

*...RAAus has a specific project in place working with [HGFA]. The focus of this project is to standardise the training provided by RAAus and HGFA Chief Flying Instructors by ensuring practical training is delivered and managed between the two organisations.*⁶⁷

Mrs Cook

106. On 6 August 2018, Mrs Cook thanked me for the opportunity to review the CPU Report. At that time, she did not wish to make any submissions. Mrs Cook requested that the Court continue to keep her abreast of the progression of this matter.

Shine Lawyers on behalf of Nghi Tam Ta

107. On 6 August 2018, Mr Janson of Shine Lawyers responded to the request for any further submissions on behalf of his client Nghi Tam Ta. Mr Janson requested that I consider specific comments made by Chief Operating Officer of Hang Gliding Federation of Australia (HGFA) Mr Brett Coupland in response to the letter from CPU:⁶⁸

We have had discussions with Jill Bailey (Recreational Aviation Australia), David Cookman and Peter McLean (both HGFA Weightshift Microlight Chief Pilot Instructors) about possible concerns with the Arrow wing.

The overwhelming consensus was that the Arrow wing is a high performance wing, tuned for high speed. All were of the opinion that pilots have not been maintaining a sufficient speed for this wing, whilst in the circuit and as such there is a possibility of stalling or spinning the wing, when turning onto base or final.

108. In submissions, Mr Janson requested that I consider the comments made by Mr Coupland in his letter to the Court⁶⁹ when making a determination about the cause of the aircraft collision.

⁶⁶ Please see page 1 of Attachment B (10 of 12) of the Coroners Prevention Unit Report.

⁶⁷ Please see page 2 of Attachment C (12 of 12) of the Coroners Prevention Unit Report.

⁶⁸ Please see page 2 of Attachment B (Page 9 of 12) of the Coroners Prevention Unit Report.

⁶⁹ Please see Attachment B of the Coroners Prevention Unit Report.

COMMENTS

Pursuant to section 67(3) of the **Coroners Act 2008**, I make the following comments connected with the death:

1. At the outset of the Inquest, I was concerned that the arrangement between Yarrawonga CFI and Aerodrome Manager Mr McLean and Mr Williams remained unclear. I considered that the arrangement for the ARV event was relevant to the immediate surrounding circumstances of Vu and Ian's death. Additionally, I considered that such an arrangement may have been relevant to the regulatory or statutory body which ought to investigate the aircraft collision. For example, WorkSafe may appropriately investigate where it is identified that an injury or death occurred in a workplace.
2. At the adjournment of the Inquest, I still had insufficient information regarding the arrangement between ARV, Mr McLean and Mr Williams. Despite the opportunity to provide verbal and written evidence, Mr McLean expressed little detail about how Mr Williams came to arrange the ARV event in Yarrawonga.
3. Mr Williams stated that, in the context of his long-standing relationship with Mr McLean, he introduced Mr Binh to the possibility of holding an ARV event at Yarrawonga Aerodrome. Mr McLean, Mr Williams and Mr Binh indicated that Mr McLean did not receive any monetary nor other compensation for organising or facilitating any aspect of the event.
4. It was evident during the Inquest that the deaths of Vu and Ian were deeply distressing to Mr McLean. However, this does not explain his inability to provide clarity about the nature the arrangement between himself, Mr Williams and the ARV. If I had been unable to contact Mr Williams for a statement, I would have had deficient information about the nature of their arrangement.
5. Mr McLean's evidence was that he arranged to meet the flight requirements of the ARV and to do so under certain time restraints. He maintained that he had taken all necessary steps to ensure the safety of the contestants and of the production crew of the ARV.
6. It was impossible to get further, definitive information about the nature of the arrangement between ARV and Mr McLean. However, the available evidence seems to corroborate the fact Mr McLean was not paid or otherwise compensated for the arrangement of the event at Yarrawonga Airport on 13 March 2016. It is not apparent whether a commercial arrangement would have led to more formal and structured event management.

7. It is difficult to conceive of the informal nature of the arrangement between ARV and Mr McLean given the number of contestants, crew and airport personnel engaged in a high-risk activity which required the input of qualified individuals with technical skill. It would be reasonable to expect that an event of this type would be carefully organised in a formal arrangement with terms of agreement. It would be reasonable to expect that the safety of all involved would comprise part of those terms.
8. I have considered whether the informal nature of ARV and Mr McLean's arrangements represent a missed opportunity to prevent the deaths of Ian and Vu. However, I am unable to definitely determine the same. Mr McLean stated that, as a qualified pilot, Ian was entitled to arrange a private flight with Vu.
9. The RAAus Investigation Report provided a factual chronology in the early stages of my investigation. The Report suggested, convincingly, that mechanical failure or fault did not cause or contribute to the collision. Additionally, although environmental factors may have played a role in the course of events, it is evident that Ian was aware of the "Dust Devils" immediately prior the collision and at the commencement of operations that day.
10. Ian flew his weight shift microlight trike at below-regulation height when joining the circuit, apparently to land his aircraft. This was uncharacteristic and seems to have prompted those who knew him to believe that Vu's actions may have led to the behaviour: by moving about in the aircraft with the weight of his camera, likely unaware of the danger this may pose; or, by requesting certain angles and positions over the Aerodrome, to film particular footage.
11. These conclusions are mere speculation by those deeply affected by the collision and the deaths of Vu and Ian. There is no evidence to support that any of these events occurred.
12. Submissions on behalf of Nghi Tam Ta have endorsed a response to the CPU Report which states that failure to maintain sufficient speed when landing is the most likely technical cause of the collision.
13. A pilot in command has the ultimate responsibility for decision-making in relation to their aircraft. On the balance of the evidence available to me at this time, pilot error directly contributed to the incident.
14. During the Inquest, witnesses raised the notion that weight shift microlight aircraft are over-represented in aircraft fatalities and should be investigated. The CPU Report was

unable to identify the precise proportion of weight shift microlight trikes in aircraft collisions resulting in fatalities.

15. When given the opportunity to comment, the HGFA and RAAus indicated that they had no concern about the relative safety of this type of aircraft nor AirBorne brand aircraft. However, the HGFA and RAAus were supportive of more pilot training, particularly where the pilot seeks to operate weight shift microlight high-performance wings.
16. The expressed concerns about the relative safety of a particular aircraft and identifying the need for more training in order to fly that aircraft are comparable concepts. In raising these concerns about the safety of weight shift microlight trikes, I do not intend to imply that an experienced pilot who has trained and continues to train to a requisite competency and recency could not operate it.
17. The ATSB was able to ascertain the rate of weight shift microlight trike collisions and fatalities in comparison with other general aviation aircraft. However, they did not have information to determine the proportion of the collisions and fatalities to each recreational aircraft being operated within the relevant period. Therefore, the comparative likelihood of collision and incident remains unclear and the information provided to me was not meaningful to the questions I posed. I am concerned that the funded investigator does not have this information available.
18. Despite the lack of meaningful data available and anecdotal evidence to the contrary, HGFA asserted that they had no concerns about the comparative safety of weight shift microlight trikes generally. HGFA were able to indicate that *'around 90% of weightshift aircraft'* are AirBorne brand and AirBorne did not represent a disproportionate number of weight shift microlight trike accidents nor incidents.
19. RAAus' response to CPU indicated that it was inappropriate to compare the proportionality of weight shift microlight trike fatalities and other recreational aircraft fatalities. RAAus stated that the *'lack of rigid structure around the pilot'* compared to three axis aircraft was analogous to a motorcycle compared to a car. I was not provided with any statistical data in relation to the proportionality of weight shift microlight trike fatalities and other recreational aircraft fatalities. I was, once again, informed that the number of registered AirBorne weightshift microlight trikes and number of accidents and incidents involving the same brand were proportionate.

20. A review of weightshift microlight trikes and the training and recency requirements to operate it seems necessary in light of: previous Coronial Recommendations; ATSB, HGFA and RAAus responses to the CPU data; anecdotal evidence presented at Inquest.
21. In a public response to previous Coronial Recommendations,⁷⁰ then Minister for Infrastructure and Transport the Honourable Darren Chester MP informed me that the ATSB were instructed to prioritise *'investigations that have the potential to deliver the best safety outcomes for the travelling public'*. He further informed me that the ATSB assists relevant sport and recreational aviation associations where resources permit. Such assistance may include aircraft accident and incident investigation training, as well as disseminating publications which include safety information and messages for pilots. Mr Chester MP stated that the 2017 Budget increased ATSB's funding over five years by an additional 12 million dollars.
22. Coronial investigations have repeatedly highlighted under-resourcing as a key issue for organisations delegated the ATSB's legislative duty to investigate civil aviation incidents.⁷¹ These concerns have been raised again during the Coronial investigation into the deaths of Vu and Ian, as meaningful data about possible trends in aircraft fatalities was not able to be obtained or recognised.

⁷⁰ Linked cases in relation to the Kinglake Gyrocopter Crash: COR 2013 5897 and COR 2013 5898.

⁷¹ Civil aviation incidents are any incidents that do not involve military aircraft.

RECOMMENDATIONS

Pursuant to section 72(2) of the *Coroners Act 2008*, I make the following recommendation(s) connected with the death:

1. In the interests of public health and safety and with the aim of preventing like deaths, **I recommend** that the Australian Transport Safety Bureau undertake an investigation to determine the proportion of weight shift microlight trikes involved in accidents and incidents compared to other recreational aircraft; and
2. In the interests of public health and safety and with the aim of preventing like deaths, **I recommend** that the Australian Transport Safety Bureau provide the results of their investigation to the Civil Aviation Safety Authority so that they may consider the viability of stronger recency requirements for pilots operating weight shift microlight trikes.
3. In the interests of public health and safety and with the aim of preventing like deaths, **I recommend** that the Secretary of the Department of Infrastructure, Regional Development and Cities consider implementing measures to ensure increased available resources for organisations delegated the Australian Transport Safety Bureau's legislative responsibility to investigate civil aviation incidents.
4. In the interests of public health and safety and with the aim of preventing like deaths, **I recommend** that the Secretary of the Department of Infrastructure, Regional Development and Cities consider implementing measures to ensure the Australian Transport Safety Bureau directly investigates all civil aviation incidents resulting in fatality.

FINDINGS

1. I find that the identity of the deceased is Quoc Huong Vu born 28 December 1972 and his death occurred on 13 March 2016 at Yarrawonga in the vicinity of Yarrawonga Airport.
2. AND I further find that the death of Quoc Huong Vu occurred while he was a passenger in aircraft Airborne Edge Trike XT912 Registration 32-8112, piloted by Ian Cook, and that their deaths occurred at the same time when the aircraft crashed into terrain.
3. I find that the deaths of Quoc Huong Vu and Ian Cook occurred in the context of an event being held at the Yarrawonga Airport with contestants of the *Amazing Race Vietnam*.
4. I find that *Amazing Race Vietnam* and Mr McLean organised the event by way of an informal arrangement without terms of agreement enshrined in a contract.
5. I find that I am unable to be definitive in relation to the nature of the agreement and any causal relationship to the aircraft collision into terrain.
6. AND the weight of the evidence supports findings that environmental factors contributed to the cause of the incident to the extent that the presence of convective turbulence adversely influenced Ian Cook's ability to control his aircraft at a time where I find that it was likely he was flying too low in the presence of these environmental factors.
7. AND I further find that it is also likely that Ian Cook failed to maintain sufficient speed when attempting to land his aircraft and that this contributing factor is the most likely technical cause of the collision into terrain.
8. Consequentially, I find that Ian Cook, pilot of aircraft Airborne Edge Trike XT912 Registration 32-8112 contributed to his own death and to the death of Quoc Huong Vu.
9. I accept and adopt the medical cause of death as ascribed by Dr Matthew Lynch and I find that Quoc Huong Vu died from injuries sustained in a light plane incident.

To enable compliance with section 73(1) of the *Coroners Act 2008* (Vic), I direct that the Findings will be published on the internet.

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

Aukje Cook

Nghi Tam Ta (by their legal representative)

Dang Vu (by their legal representative)

Hai Vu (by their legal representative)

AirBorne WindSports Pty Ltd Chief Executive Officer Rick Duncan

Recreational Aviation Australia Chief Executive Officer Michael Linke

Hang Gliding Federation of Australia General and Operations Manager Brett Coupland

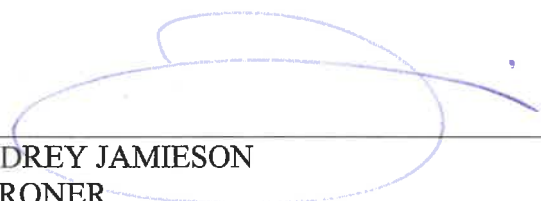
Australian Transport Safety Bureau Chief Commissioner Greg Hood

Civil Aviation Safety Authority Chief Executive Officer and Director of Aviation Safety
Shane Carmody

Department of Infrastructure, Regional Development and Cities Secretary Steven Kennedy (PSM)

Leading Senior Constable Janis McMillan

Signature:



AUDREY JAMIESON
CORONER
Date: **23 October 2018**





Coroners Court of Victoria

COR 2016 1158

**CORONIAL INVESTIGATION
INTO THE DEATH OF
QUOC HUONG VU**

**ANNEXURE ONE
CPU REPORT**

Coroners Court of Victoria
65 Kavanagh Street, Southbank
Tel: (03) 8688 0700
Email: courtadmin@coronerscourt.vic.gov.au



Coroners Court of Victoria

Coroners Prevention Unit Advice

Attention: Coroner Audrey Jamieson
From: Jeremy Dwyer
Date: 29 June 2018
Re: Fatal crash risk for weight-shift microlight trike aircraft
Case: 20161157 - Ian COOK
20161158 - Quoc Huong VU
Keywords: weight shift microlight trike, light sport aircraft

1. Background

1.1 Coroner's referral

Coroner Audrey Jamieson is investigating the 13 March 2016 deaths of pilot Ian Cook and passenger Quoc Huong Vu. Briefly, the deaths occurred when the Airborne XT-912 Arrow aircraft Ian Cook was piloting (a weight shift microlight trike) collided with the ground at Yarrowonga Airfield in Victoria.

Coroner Jamieson heard evidence at inquest regarding the context and circumstances of the fatal collision. This included evidence that the type of aircraft involved in the collision has also been involved in other fatal collisions and these were related to known design issues with the aircraft. Following the inquest hearing, Coroner Jamieson requested that the CPU provide advice on the following:

- Whether any empirical evidence supports the anecdotal concern that weight shift microlight trikes in general - and Airborne-model aircraft in particular - are over-represented among fatal aircraft collisions.
- Whether there have been any Coronial recommendations in Victoria or other jurisdictions regarding to this type of aircraft.

1.2 Inquest evidence regarding Airborne aircraft

At the inquest hearing on 14 November 2017, witness Lawrence Thompson stated (p.27 of the transcript, lines 19-26) that:

Whenever there's been a fatal accident and there's been an Airborne aircraft with the arrow wing on it, um, different pilots you sit around with and talk about and they seem to think that there is an issue with it and they stall if you get too low on air speed. But as I said before, I'm not an aeronautical engineer but most of the recent fatalities have been in that particular aircraft, the combination, that I know of.

Witness Peter McLean also asserted that the type of aircraft involved in the fatal crash can become unstable at low speed (p.53 lines 28-31), and explained (page 62 lines 22-25) about the risk of incipient spin when operating it:

Um, my personal opinion it's a design flaw with the Airborne Arrow. I had many people ring me in the early days of the Arrow who were scared of the wing.

He also made reference to "resonance built up in the wing" having led to a number of Airborne Arrow aircraft "flipping" (page 72 lines 5-7).

1.3 Terminology

The terminology used to describe aircraft such as the Airborne XT-912 Arrow can be somewhat confusing, and appears to be applied inconsistently even by the bodies responsible for regulating these aircraft, including the Civil Aviation Safety Authority (CASA),¹ the Australian Transport Safety Bureau (ATSB),² Recreational Aviation Australia (RAAus)³ and the Hang Gliding Federation of Australia (HGFA).⁴ Cross-referencing between material from these organisations, the CPU has adopted the following terms for this memorandum:

- **Light sport aircraft**, a general umbrella term used by CASA to designate "small, simple to operate, low performance aircraft".⁵ Criteria for being a light sport aircraft include maximum seating capacity of two people, must be propeller-driven if powered, and maximum take-off weight of 600kg. The term "light sport aircraft" can be thought of as encompassing those powered aircraft idiomatically described as "ultralight" and "microlight", as well as balloons and gliders and other unpowered aircraft. CASA also uses the term "light recreational aircraft", which appears to be a synonym for "light sport aircraft".
- **Weight shift microlight**, a type of light sport aircraft driven by a propeller, where the pilot steers the aircraft by shifting his or her weight with respect to the wing (rather than using three-axis control). The Airborne XT-912 Arrow is a weight shift microlight aircraft. In some CASA material, a weight shift microlight is referred to as a "weight shift controlled aeroplane".⁶
- **Trike**, a type of light sport aircraft with its base configured like a tricycle; that is, with one wheel at the front and two wheels at the rear. The Airborne XT-912 Arrow is a weight shift microlight trike.

1 CASA is responsible for regulating civil aviation in Australia.

2 The ATSB is responsible for investigating civil aviation incidents including collisions in Australia, although it does not investigate all such incidents because of resourcing issues.

3 CASA sets the regulations for all civil aviation in Australia, but for sports aviation, the regulations are applied and enforced by partner organisations known as "self-administering organisations" or "Recreational Aviation Administration Organisations" (RAAOs). CASA does not define "sports aviation" very clearly, perhaps because it encompasses so many activities; these include flying for enjoyment, in competitions, for parachuting, and so on, usually using small and simple aircraft. RA-Aus is one such self-administering organisation; it is responsible for training and certifying pilots and flying instructors to operate certain types of light sport aircraft, and registering these aircraft.

4 The HGFA is also a self-administering organisation and has similar responsibilities to RA-Aus.

5 Civil Aviation Safety Authority, "Light sport aircraft certificate of airworthiness", Advisory Circular AC 21-41(0), September 2005, p.2.

6 See for example Civil Aviation Safety Authority, "Civil Aviation Order 95.32 (Exemption from the provisions of the Civil Aviation Regulations 1988 — weight shift controlled aeroplanes and powered parachutes) Instrument 2015", 13 August 2015.

- **Fixed wing microlight**, a type of light sport aircraft driven by a propeller, where the pilot steers the aircraft using three-axis control (rudders and ailerons and elevators).
- **Gyroplane**, a type of light sport aircraft where thrust is provided by a propeller and lift is generated by an unpowered rotor that freely rotates in response to the forward thrust as air moves over the rotor disc. Gyroplanes (also known as gyrocopters) can look like helicopters, but a helicopter's rotor is driven by an engine whereas the gyrocopter's rotor is not. Helicopters can ascend vertically and hover but a gyroplane cannot.

2. Fatal incidents involving weight shift microlight trikes in Australia

In preparing to address Coroner Jamieson's questions, the CPU used a range of databases to identify all fatal collisions in Australia involving weight shift microlight trikes. A "collision" was defined as an incident where a weight shift microlight trike struck anything else: the ground, a tree, a power line, a building, another aircraft, or so on. Non-collision deaths were excluded; for example where a person was struck by a propeller while the aircraft was grounded.

The following is an overview of the CPU's case identification strategy, issues encountered, and the results of the database searches.

2.1 Search of National Aviation Occurrence Database (NAOD)

Section 18 of the *Transport Safety Investigation Act 2003* (Cwth) requires aircraft incidents resulting in death to be reported to the ATSB. The ATSB maintains the NAOD, which is accessible via <http://www.atsb.gov.au/avdata/naod/> and contains information on all aircraft accidents and incidents reported to the ATSB between 1 July 2003 and the present.

On 11 June 2018, the CPU searched the NAOD to identify all Australian aircraft occurrences meeting the following criteria:

- Date range = 1 July 2003 to 31 December 2017
- Aircraft and Airspace: Aircraft Type = Powered Weight Shift
- Injury Level = Fatal

According to initial search results, there were 37 fatal aviation occurrences involving powered weight shift aircraft in Australia between 1 January 2000 to 31 December 2017, in which 44 deaths occurred. When the CPU reviewed descriptions of the fatal occurrences, the aircraft involved were established to be as follows:

- 19 fatal occurrences involved weight shift microlight trikes.
- Nine involved unpowered hang-gliders.
- Four involved powered paragliders.
- Four involved unpowered paragliders.
- One involved a powered parachute.

2.2 Search of National Coronial Information System (NCIS)

The NCIS is an online database accessible via <https://www.ncis.org.au/>, which contains coded information and text-searchable Coronial documents (findings, police reports, autopsy and toxicology reports) for deaths investigated by Coroners in Australia. NCIS data spans deaths reported between 1 July 2000 and the present for all Australian Coronial jurisdictions except Queensland (available data for Queensland spans from 1 January 2001). The CPU understands that a death resulting

from an aircraft collision would be required to be reported to the Coroner in every Australian Coronial jurisdiction.

The CPU was able to search and access NCIS information for all Victorian Coronial matters both open and closed; however access restrictions meant that the CPU could only search and access closed case information from other Australian Coronial jurisdictions.

Three separate searches were executed using the NCIS Query Design screen to try to identify relevant deaths caused by weight shift microlight trike collisions. In each search the case status was specified as "Closed" (for all jurisdictions except Victoria, where there was no need to specify case status) and intent type on completion as "Unintentional". The parameters of the three searches were:

- Object or Substance Producing Injury Category 1 = "Aircraft Or Means Of Air Transport", Category 2 = "Powered Aircraft or Means of Air Transport", Category 3 = "Ultralight Powered Aircraft".
- Report type = "Finding", Text in Reports = "weight shift" or "weight-shift" or "microlight" or "micro-light" or "ultralight" or "ultra-light" or "trike".
- Report type = "Finding", Text in Reports = "Airborne" and "Arrow".

The search results, when combined, yielded a total of 175 unique cases. The Coronial documents for each were reviewed to establish whether it met the inclusion criteria. The CPU confirmed that 19 deaths across 16 fatal incidents were the result of weight shift microlight trike collisions. The remaining 156 deaths comprised:

- 78 deaths resulting from collisions involving known light sport aircraft that were not weight shift microlight trikes (they were mainly gyroplanes and fixed wing microlights).
- 27 deaths resulting from collisions involving light sport aircraft where there was insufficient evidence to establish whether they were weight shift microlight trikes or another type of light sport aircraft.
- 26 deaths resulting from collisions involving aircraft that were positively confirmed not to be light sport aircraft.
- 25 deaths resulting from collisions involving aircraft where there was insufficient evidence to establish whether they were light sport aircraft.

2.3 Search of CPU Database

The CPU maintains an internal database ('the CPU database') that stores coded information about all deaths of deaths reported to and investigated by Victorian Coroners between 1 January 2000 and the present.

On 5 February 2018, the CPU searched its database to identify all deaths between 1 January 2000 and 5 February 2018 where the deceased's intent was classified as unintentional and the incident type was classified as involving an aircraft. This search yielded 157 deaths, the circumstances of which were reviewed to establish whether each met the inclusion criteria. Through this review process the CPU identified 10 relevant deaths which occurred in eight fatal incidents; however there were further deaths where the CPU could not confirm the aircraft type involved.

2.4 Reconciliation between data sources

The CPU first reconciled the results of the CPU database search with the Victorian results of the NCIS search to produce a list of relevant Victorian cases; the process was straightforward and does not require further description here.

The CPU then set about reconciling the NCIS and NAOD data to produce a master list of Australian fatal crashes involving weight shift microlight trikes. The reconciliation involved matching two pieces of information - date and location of fatal incident – that were common to both datasets. Where a fatal incident identified in one dataset could not be matched with a corresponding fatal incident in the other dataset, the CPU conducted further searches with expanded parameters as required. For example:

- For a death identified on the NCIS where there was no immediately obvious NAOD match, the CPU searched the NAOD for all fatal incidents regardless of coded aircraft type which occurred within two months either side of the death, and reviewed these to identify any likely match.
- For a fatal incident identified on the NAOD where there was no immediately obvious NCIS match, the CPU searched the NCIS for all deaths involving Aircraft Or Means Of Air Transport regardless of aircraft type which occurred within two months either side of the fatal incident, and reviewed these to identify any likely match.

In theory, there should have been perfect concordance between the NCIS and NAOD data, as legislation requires that a fatal incident causally connected to an aircraft collision must be reported both to the ATSB and to the Coroner in the jurisdiction where it occurred. However, in practice the reconciliation process revealed some discrepancies between the data. Leaving aside the fatal incidents that occurred before 1 July 2003 (when ATSB data collection began):

- There were three deaths identified on the NCIS for which no NAOD fatal incident match could be found. The CPU was uncertain as to the explanation for this.
- There were four fatal incidents identified on the NAOD for which no corresponding deaths could be found on the NCIS. A potential explanation might be that the deaths were still under investigation (none were in Victoria) and therefore the CPU could not access information about them.

2.5 Results

The CPU identified 26 fatal incidents, seven of which involved two deaths each (including the incident in which Ian Cook and Quoc Huong Vu died). Table 1 shows the year and state of each incident, and the type of weight shift microlight trike as described in the Coronial material and/or any other corroborating material (such as ATSB reports) that the CPU could access. Airborne brand weight shift microlight trikes were involved in 20 of the 26 fatal incidents.

Table 1: Fatal incidents resulting from weight shift microlight trike collisions, Australia 2000-2017.

Incident	Year	State	Deaths	Weight shift microlight trike
1	2000	Victoria	One	Pegasus
2	2001	Victoria	One	Airborne Edge X 582
3	2001	Northern Territory	One	Pegasus
4	2002	Victoria	One	Not specified
5	2003	New South Wales	Two	Airborne Edge
6	2004	New South Wales	One	Airborne Australia Trike
7	2005	Northern Territory	One	Airborne Edge X
8	2005	Queensland	One	Airborne Wind Sports Edge Weight

(Table 1 continued over page)

(Table 1 continued from previous page)

Incident	Year	State	Deaths	Weight shift microlight trike
9	2007	Queensland	Two	Solar Wings Q2
10	2008	Victoria	One	Airborne Australia Edge
11	2009	New South Wales	One	Airborne Australia Trike
12	2009	Victoria	One	Airborne Edge Trike
13	2009	Northern Territory	One	Redback
14	2009	Western Australia	One	Airborne Edge
15	2009	Victoria	Two	Pipistrel Spider
16	2010	New South Wales	One	Airborne Windsports Edge X
17	2011	Tasmania	One	Airborne Edge X Classic
18	2011	New South Wales	One	Airborne XT 912
19	2012	New South Wales	Two	Airborne Australia Edge
20	2012	New South Wales	One	Airborne Australia Edge
21	2013	Northern Territory	One	Airborne Edge X
22	2014	Victoria	One	Airborne Australia Trike
23	2015	New South Wales	Two	Airborne Australia Edge
24	2015	New South Wales	One	Airborne Australia Edge
25	2016	Victoria	Two	Airborne Edge
26	2016	Queensland	Two	Airborne XT 912

Appendix 1 to this memorandum contains an expanded version of Table 1 that includes the dates of each incident and (where known) the NCIS and NAOD reference numbers.

3. Risk of fatal collision

While Airborne brand aircraft accounted for the majority of fatal weight shift microlight trike collisions, evaluating the relative risk of their involvement compared to other brands requires further information, for example:

- Data about the composition by brand of the Australian weight shift microlight trike fleet over time, would enable the CPU to establish how Airborne aircraft are represented in fatal collisions compared to their representation in the Australian fleet.
- Data about annual logged time in flight by weight shift microlight trike brand would enable the CPU to compare Airborne and other brand aircraft involvement in fatal collisions per 100,000 flying hours.

For the more general question of weight shift microlight trike involvement versus involvement of other types of aircraft in fatal collisions, similar data on frequency of fatal collisions, Australian aircraft fleet composition and logged flight time by aircraft type would be required.

The CPU does not have access to data such as that described immediately above, which would enable it to answer Coroner Jamieson's questions about whether weight shift microlight trikes in general - and Airborne-model aircraft in particular - are over-represented among fatal aircraft collision. Therefore, at the direction of Coroner Jamieson, the CPU wrote to the ATSB (the organisation legislatively responsible for investigating civil aviation incidents) as well as the HGFA and RA-Aus (the two self-administering organisations to which CASA has delegated responsibility for administering regulation of weight shift microlight trikes and investigating

incidents involving these aircraft), to seek their assistance. The following questions were asked of all three organisations:

- Does your organisation hold data on the types of aircraft involved in the accidents and incidents it investigates?
- If your organisation holds such data, does the data confirm or refute either of the following: (a) that weight shift controlled aircraft generally are involved in disproportionately more accidents and incidents than other types of aircraft; and/or (b) that Airborne brand aircraft are involved in disproportionately more accidents and incidents than other weight shift controlled aircraft?
- Does your organisation hold any concerns about weight shift controlled aircraft generally, or Airborne brand aircraft specifically, being involved in disproportionately more accidents and incidents than other aircraft?

The following is a brief summary of the three organisations' responses to these three questions; copies of the complete responses have been provided together with this memorandum.

3.1 Response of ATSB

The ATSB response was dated 10 May 2018 and was signed by Chief Commissioner and Chief Executive Officer Greg Hood (**Attachment A**).

Greg Hood confirmed that the ATSB gathers a range of data on aircraft accidents and incidents. He directed the CPU to an ATSB publication titled *Aviation Occurrence Statistics 2007 to 2016* (ATSB document reference AR-2017-104 dated 15 January 2018), which summarised this data for a 10-year period. Greg Hood specifically directed the CPU to sections of this document showing that recreational aviation entailed higher accident rates than general aviation or air transport operations, but that weight shift aircraft had the lowest accident rates among recreational aircraft.

Greg Hood indicated that the ATSB did not have data to establish whether Airborne brand aircraft were disproportionately involved in weight shift controlled aircraft accidents. He attached a spreadsheet of occurrences involving Airborne aircraft extracted from the NAOD, however this spreadsheet does not assist in addressing Coroner Jamieson's questions.

The CPU has included this spreadsheet in Attachment A, however has not included the ATSB *Aviation Occurrence Statistics: 2007 to 2016* because it is a publicly available document⁷ and is lengthy (87 pages).

3.2 Response of HGFA

The HGFA response was provided on 16 April 2018 and was signed by Chief Operating Officer and Operations Manager Brett Coupland (**Attachment B**).

Brett Coupland indicated that the HGFA holds data on the aircraft accidents and incidents it investigates. This data does not support a conclusion that weight shift controlled aircraft generally are involved in disproportionately more accidents and incidents than other aircraft types; nor that Airborne brand aircraft are involved in disproportionately more accidents and incidents than other weight shift controlled aircraft. In addressing this second point, he noted that approximately 90% of all weight shift controlled aircraft registered in Australia are Airborne aircraft.

⁷ Australian Transport Safety Bureau, *Aviation Occurrence Statistics 2007 to 2016*, 15 January 2018, <<https://www.atsb.gov.au/publications/2017/ar-2017-104/>>, accessed 27 June 2018.

Brett Coupland further described the results of consultation he undertook with representatives of HGFA and RAAus about potential concerns with the Airborne Arrow wing. He wrote:

The overwhelming consensus was that the Arrow wing is a high performance wing, tuned for high speed. All were of the opinion that pilots have not been maintaining a sufficient speed for this wing, whilst in the circuit and as such there is a possibility of stalling or spinning the wing, when turning onto base or final.

We believe that a pilot should receive some familiarization flights, with an instructor before flying any high performance Weightshift Microlight wing.

3.3 Response of RAAus

The RAAus response was provided on 17 April 2018 and was signed by Chief Executive Officer Michael Linke (**Attachment C**).

Michael Linke indicated that RAAus maintains an Occurrence Management System that contains data on aircraft accidents and incidents. Regarding the question of whether weight shift controlled aircraft generally are involved in disproportionately more accidents and incidents than other types of aircraft, Michael Linke explained that he did not believe it is appropriate to compare accident rates between weight shift and three axis aircraft because the two types of aircraft are used differently and present different risks of injury and death in accident.

Michael Linke stated that according to the data held by RAAus, 18 weight shift accidents and incidents occurred within a sample period, and 16 of these involved Airborne aircraft. He wrote that this is consistent with the proportion of Airborne brand aircraft registered in the RAAus fleet; they account for 78% of all registered weight shift aircraft. Michael Linke advised in conclusion that the RAAus has no concerns about weight shift aircraft generally, or Airborne aircraft in particular.

4. Coronial recommendations and comments on weight shift microlights

Among the 26 fatal incidents involving powered weight shift microlight trikes which were identified in Section 2 of this memorandum, the CPU was able to access Coronial material via the NCIS for 15 fatal incidents. The CPU reviewed these 15 findings (or sets of findings in multi-death fatalities) to establish whether any Coroner had made comments or recommendations regarding weight shift microlight trikes. The following were identified.

4.1 Queensland case QLD.2005.2594

Coroner Thomas Braes investigated this death, which occurred when the wing tip of an Airborne Wind Sports Edge weight shift controlled microlight trike separated from the aircraft during flight leading to a crash which killed the pilot.

Coroner Braes considered a large number of issues in his investigation (including inquest) into the death; his finding is a substantial 108 pages in length. Of potential relevance to Coroner Jamieson's investigation, Coroner Braes considered at length the issue that the ATSB does not involve all fatal aircraft crashes, and instead relies on self-administering organisations such as the RAAus and HGFA to conduct most investigations particularly of light and microlight aircraft. He expressed a concern that these organisations are not as well equipped and skilled as the ATSB for this investigative work, and that they are generally under-resourced:

Unfortunately it appears to me that the attitude that the recreation aviation industry is less deserving of resources permeates throughout the system so

that regulatory vacuums exist in the areas of regulation, inspection, investigation, and enforcement. [p.62]

Coroner Braes commented:

Where an incident occurs that involves the crash of an aircraft it would seem sensible that all regulators and investigators be involved and that either a joint preliminary investigation be undertaken or that a lead investigator be appointed to conduct the immediate inquiry with a view of then determining whether or not other investigators and/or regulators would become involved in the inquiry. A formal identifiable approach to such matters should be in place, so that tragedies such as [the deceased's] death and those of many others in the recreation aviation industry do not go unnoticed even when there may be threads of commonality and concern which link them. [p.69]

Coroner Braes's other major concern was with the number of fatal incidents involving AirBorne Edge aircraft. He described several such incidents, and with reference to evidence before him at inquest, he noted that:

It is apparent [...] that there have been a number of concerns about the Edge aircraft and generally about the way that the recreation aviation industry has been controlled. [p.71]

He further wrote:

It is my recommendation that CASA review the registration of the AirBorne Edge aircraft and that the ATSB identify and investigate all fatalities and serious accidents involving the AirBorne Edge aircraft. There is sufficient nexus between the incidents to warrant a review of the AirBorne Edge aircraft. [p.72]

Coroner Braes' finding contained 58 formal recommendations, the most relevant of which are the following:

1. CASA should endorse only one delegate to regulate weightshift aviation.
4. CASA should review the operations and funding arrangements of all RAAO's to ensure the level of funding is commensurate with their activities and the responsibilities delegated to them.
6. CASA should review the operation of RA-AUS and HGFA to determine the extent of their respective authority and to standardise procedures.
9. CASA should review the suitability of the AirBorne Edge weight shift aircraft for registration under CAO 95.32.
20. If the recreation aviation industry is to continue to have numerous delegated authorities those organisations and CASA should develop policies for pilot training, aircraft maintenance, the transfer of aircraft, the licensing of flying instructors and inspectors, the regulation of airports, aircraft landing areas, flight training facilities and all other aspects of the recreation aviation industry which are common to the delegated authorities to ensure certainty within the sector and a high level of safety consciousness.
23. ATSB should investigate all aircraft crashes resulting in death.
26. I repeat the recommendation made by Coroner Morahan on 28th February 2002 in the inquest held at the Coroners Court at Cessnock concerning the death of Gordon Clifton that: "I recommend that the

Civil Aviation Safety Authority of Australia and Air Transport Safety Board consider whether it is an appropriate time for their organisation to become more involved in the operation of ultra light aircraft in Australia”.

55. CASA and the ATSB should investigate all known AirBorne Edge microlight crashes to determine whether there is an engineering or design fault in the wing and if thought necessary to require the manufacturer to recall all of the airframes still in use for inspection and alteration.

4.2 Victorian case VIC.2009.3764

Coroner John Olle investigated this death, which resulted from an Airborne Edge weight shift microlight trike collision. The death was investigated by RAAus, and in his finding Coroner Olle noted the issue that:

[...] CASA has given RAAOs responsibility for the regulation of recreational aviation without commensurate power to enforce their regulations. Therefore, there are few if any consequences for breaching the RAAO manuals. [p.3]

He further noted concerns had been expressed that:

Recreational aviation continues to be a low priority for CASA and the ATSB despite a high number of deaths and an almost incomprehensible legal framework; and despite the high number of deaths in the recreational aviation industry, there is a lack of quality data and information to inform change and therefore the need for change is not being recognised and potential lessons are not learned. Therefore even relatively low-cost, high reward solutions are not pursued. [p.3]

Coroner Olle sought responses from CASA, the ATSB, RAAus and HGFA regarding these concerns, and outlined their responses in his finding. Coroner Olle did not make any recommendations.

4.3 Northern Territory case NT.2013.241

Coroner Greg Cavanagh investigated this death, which occurred when the pilot stalled his Airborne Edge XT-912 aircraft and crashed. Coroner Cavanagh did not make any recommendations, but noted generally that:

Ultralight accidents and/or deaths are unfortunately not rare. The structure of an ultralight is such that if control is lost it is difficult to recover and there is not a great deal of protection for the pilot and/or any passenger. This danger is significantly increased the lower the altitude at the time that control is lost. [p.28]

5. Other potentially relevant Coronial recommendations and comments

In the course of reviewing Coronial findings nationally on the NCIS for the case identification process described in section 2.2 of this memorandum, the CPU identified recommendations that were not made specifically with respect to weight shift microlight aircraft, but were more generally relevant to safety of light sport aircraft. These recommendations are outlined below.

5.1 New South Wales case NSW.2001.2175

The death occurred as the result of a collision involving an unspecified ultralight aircraft. A representative of the Australian Ultralight Federation attended the scene to assist with the investigation. Coroner Michael Morahan subsequently held an inquest

into the death. Unfortunately, details are not available regarding what was examined at inquest. Coroner Morahan recommended:

I recommend that the Civil Aviation Safety Authority of Australia and Air Transport Safety Board consider whether it is an appropriate time for their organisation to become more involved in the operation of Ultra Light Aircraft in Australia. [p.1]

5.2 Queensland case OLD.2004.3597

The deceased was the pilot of a gyrocopter. In the finding, Coroner John Costello considered a range of issues relevant to how light sport aircraft deaths more broadly are investigated.

Coroner Costello was concerned that the death occurred while the pilot was engaged in paid employment and therefore should have been investigated by the Civil Aviation Safety Authority (CASA), however it was investigated by the relevant Recreational Aviation Administration Organisation (RAAO) for gyrocopters instead, which was the Australian Sports Rotorcraft Association (ASRA). Coroner Costello noted that ASRA was paid only around \$15,000 to \$20,000 per year for the functions it performed on behalf of CASA, and commented:

It might be observed that if CASA was required to take back the role currently performed by ASRA, in reality a consideration long overdue, it would cost multiples of the sum involved. It is true CASA has to contend with major issues with respect to (for example) passenger aircraft. On the other hand, it might be further observed that the commercial use of gyroplanes is a fact of life. Throughout Australia, there are hundreds of these craft operating on some basis. No basis was advanced for how the subject annual sum was derived at, or how it is allocated, State by State. [p.4]

Coroner Costello made a number of recommendations, including the following:

That the reimbursement for functions carried out by ASRA on behalf of CASA under the Deed of Agreement that exists between the two organisations is totally inadequate to allow ASRA to properly administer the operations of gyroplanes within Australia. A minimum of \$250,000 per annum is required to administer and ultimately regulate gyroplanes in both Sport and Recreation, and Aerial Work operations. [p.4]

5.3 Queensland case OLD.2011.967

The deceased was the pilot of a gyrocopter and was struck by its propeller blades during an engine test. Investigating Coroner John Lock noted that the ATSB did not investigate the death, despite having "primary legislative responsibility" for investigating aircraft incidents in Australia. CASA also did not investigate. Instead, the investigation was conducted by the relevant Recreational Aviation Administration Organisation (RAAO) for gyrocopters, which was the Australian Sports Rotorcraft Association (ASRA). The reasons ATSB and CASA gave for not investigating included resource constraints and the lack of a broader safety issue requiring scrutiny.

Coroner Lock expressed concern about the overall quality of the investigation into the death, and recommended:

1. CASA should review its expectations of what ASRA can achieve within the limited resources provided to them, with a view to either increasing their resources or taking back some of the responsibilities.

2. If resources are increased the Federal Government should ensure CASA is funded so that ASRA's funding can be increased by not decreasing the funding to other RAAOs. [p.31]

5.4 Victorian cases VIC.2013.5633 and VIC.2013.5634

The light sports aircraft involved in these two deaths was a gyroplane. Investigating Coroner Audrey Jamieson examined a number of issues in the finding, including the relationship between CASA and the various RAAOs who investigate fatal crashes of light recreational aircraft. An issue in the case was the sub-optimal quality of the regulatory activities undertaken by ASRA, the RAAO for gyroplanes. Coroner Jamieson noted:

A recurring theme has related to ASRA's status as an almost entirely voluntary organisation, with limited funds to wield at improving operations to better ensure the compliance of its members. Additionally, the ATSB appears to have all-but relinquished its responsibility to investigate fatal incidents involving gyroplanes, and ASRA has stepped in - without any dedicated investigation funding - to assist police in this regard, despite having no obligation to do so under its Deed of Agreement with CASA, or indeed in its own constitution.

I note that the panel of an Aviation Safety Regulation Review, released in May 2014 as part of a ministerial review of aviation safety regulation, observed that there was minimal investigation by the ATSB of accidents in the sports and recreational sectors, due to resource limitations. With the growth in activity of sport and recreational aviation in Australia, the panel recommended that 'The ATSB investigates as many fatal accidents in the sport and recreational aviation sector as its resources will allow'. [p.53]

Coroner Jamieson recommended, inter alia:

With the aim of preventing like deaths and improving the oversight of sporting aviation in Australia, I recommend that the Commonwealth Minister for Infrastructure and Transport commission a review of the funding made available to recreational aviation administration organisations through the Civil Aviation Safety Authority. [p.56]

5.5 Victorian cases VIC.2016.1601 and VIC.2016.1602

Coroner Phillip Byrne investigated these two deaths, which occurred in a fixed wing ultralight aircraft crash. The pilot in the death held a restricted licence as a flying instructor, and was engaged in flying activities contrary to the restrictions imposed. One issue Coroner Byrne considered was how the relationship between CASA and RAAUs and other RAAOs in achieving outcomes such as ensuring compliance with regulatory requirements and restrictions in light sport aircraft operation. Coroner Byrne concluded that:

In the final analysis, it would appear the reality is that no structured investigation of compliance is undertaken. Presumably, the assumption is that those whose operations are restricted will comply. [p.8]

Coroner Byrne commented:

I am satisfied RAAUs has a strong commitment to the safety of its members and the public at large as demonstrated by a number of initiatives introduced designed to enhance its commitment to safety. However, like most operations, funding is a perennial issue. In his report [the RAAU investigator] took the opportunity to discuss the issue of funding which he described as "the primary difficulty faced by RAAUs" in seeking to fulfil its obligations under the arrangements with CASA. I must say that I was

somewhat surprised to note that annual government funding of RAAus is a mere \$100,000; on any view a "shoestring budget" compared with that of CASA.

[...] While again I make no formal recommendation on the issue of funding, when one considers the resources RAAus expends on investigations such as this, if the Australian Transport Safety Bureau (ATSB) received additional funding it could perhaps direct additional funding to RAAus who undertake investigations that may otherwise require input from ATSB. [p.9]

6. Further information

If any further information is required, or clarification regarding the contents of this memorandum, the CPU will be pleased to assist.

Appendix 1

Table 1: Fatal incidents resulting from weight shift microlight trike collisions, Australia 2000-2017. († Fatal incident occurred before NCIS database records begin and was identified in CPU database. * Fatal incident occurred before NAOO database records begin.)

Incident	Date	State	Deaths	Weight shift microlight trike	NCIS Reference	ATSB Reference
1	17 Jan 2000	Victoria	One	Pegasus	NO MATCH†	NO MATCH *
2	14 Apr 2001	Victoria	One	Airborne Edge X 582	VIC.2001.1672	NO MATCH *
3	23 Apr 2001	Northern Territory	One	Pegasus	NT.2001.85	NO MATCH *
4	19 Dec 2002	Victoria	One	Not specified	VIC.2002.4061	NO MATCH *
5	04 Jun 2003	New South Wales	Two	Airborne Edge	NSW.2003.2436, NSW.2003.2437	NO MATCH *
6	25 Sep 2004	New South Wales	One	Airborne Australia Trike	NSW.2004.4565	200403813
7	02 Oct 2005	Northern Territory	One	Airborne Edge X	NT.2005.250	200504975
8	01 Nov 2005	Queensland	One	Airborne Wind Sports Edge Weight	OLD.2005.2594	200505347
9	22 May 2007	Queensland	Two	Solar Wings OZ	OLD.2007.2259, OLD.2007.2260	200703615
10	29 May 2008	Victoria	One	Airborne Australia Edge	VIC.2008.2280	200803636
11	06 Jun 2009	New South Wales	One	Airborne Australia Trike	NSW.2009.2632	200903422
12	05 Aug 2009	Victoria	One	Airborne Edge Trike	VIC.2009.3764	200904760
13	20 Aug 2009	Northern Territory	One	Redback	NT.2009.178	NO MATCH
14	03 Oct 2009	Western Australia	One	Airborne Edge	WA.2009.1343	NO MATCH
15	07 Dec 2009	Victoria	Two	Pipistrel Spider	VIC.2009.5668, VIC.2009.5669	200907775
16	20 Nov 2010	New South Wales	One	Airborne Windsports Edge X	NSW.2010.5038	NO MATCH
17	25 Apr 2011	Tasmania	One	Airborne Edge X Classic	TAS.2011.168	201102947
18	29 Apr 2011	New South Wales	One	Airborne XT 912	NSW.2011.1915	201103048
19	07 Apr 2012	New South Wales	Two	Airborne Australia Edge	NO MATCH	201202825
20	08 Jun 2012	New South Wales	One	Airborne Australia Edge	NO MATCH	201205318
21	27 Oct 2013	Northern Territory	One	Airborne Edge X	NT.2013.241	201309734
22	27 Apr 2014	Victoria	One	Airborne Australia Trike	VIC.2014.2125	201402665
23	12 Apr 2015	New South Wales	Two	Airborne Australia Edge	NO MATCH	201501360
24	23 Jun 2015	New South Wales	One	Airborne Australia Edge	NO MATCH	201502711
25	13 Mar 2016	Victoria	Two	Airborne Edge	VIC.2016.1166, VIC.2016.1167	201600333
26	28 Nov 2016	Queensland	Two	Airborne XT 912	OLD.2016.4942, OLD.2016.4954	201604743



Coroners Court of Victoria

Attachments

Fatal crash risk for weight-shift microlight trike aircraft

Re: investigation into the deaths of
Ian Cook COR 2016 1157 and Quoc Huong Vu COR 2016 1158

Material	Pages
Letter dated 10 May 2018 from Greg Hood, Chief Executive Officer, Australian Transport Safety Bureau (includes data attachment)	2 - 8
Letter received on 16 April 2018 from Brett Coupland, Chief Operating Officer and Operations Manager, Hang Gliding Federation of Australia	9 - 10
Letter dated 17 April 2018 from Michael Linke, Chief Executive Officer, Recreational Aviation Australia	11 - 12



Australian Government
Australian Transport Safety Bureau

Chief Commissioner

Our reference: ATSB 18/1 – CC2018/53
Contact: Patrick Hornby, 02 6274 8136

10 May 2018

Mr Jeremy Dwyer
Senior Case Investigator
Coroners Prevention Unit
Coroners Court of Victoria

Via email: jeremy.dwyer@coronerscourt.vic.gov.au

Dear Mr Dwyer

Thank you for your letter of 26 March 2018 in relation to the inquest into the deaths of Mr Ian Cook and Mr Quoc Huong Vu. Responses to each of your questions are provided below:

1. Does the ATSB hold data on the types of aircraft involved in the accidents and incidents it investigates?

The ATSB maintains an occurrence database of all the accidents and incidents notified to the ATSB. It should be noted that the ATSB does not investigate all occurrences. In 2016-17 the ATSB received 17,046 aviation notifications of which 5,482 were classified as occurrences. The ATSB initiated 38 complex investigation and 113 short investigations.

In accordance with the Minister's Statement of Expectations for the ATSB, the ATSB gives the greatest priority to investigating occurrences that will deliver the best safety outcomes to the travelling public. Where there is a self-administering organisation such as a recreational aviation body that is oversighting the operation, the ATSB does not generally investigate.

A public version of the ATSB's occurrence database is accessible online at:
<http://www.atsb.gov.au/avdata/>

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2. If the ATSB holds such data, does the data confirm or refute either of the following: (a) that weight shift controlled aircraft generally are involved in disproportionately more accidents and incidents than other types of aircraft; and/or (b) that Airborne brand aircraft are involved in disproportionately more accidents and incidents than other weight shift controlled aircraft?

The ATSB publication 'Aviation Occurrence Statistics: 2007 to 2016' (AR-2017-104) (attached) provides information relevant to your queries. Figure 7, Table 25 and Figure 23 provide relevant statistical information.

With respect to the question about whether weight shift controlled aircraft generally are involved in disproportionately more accidents and incidents than other types of aircraft, the ATSB advises at page 11 of its publication:

Recreational aviation operation types had notably higher accident rates when compared to general aviation or air transport operations. While RAAus registered aeroplanes had the highest accident rate, general aviation, aerial agriculture and private/business and sport flights had higher accident rates than recreational gyrocopters and weight shift aircraft.

At page 46 of the publication the ATSB advises:

Weight shift activity, as reported by the HGFA and RAAus, increased by around 20 per cent over this period. On average, weight shift aircraft had the lowest accident rates of all types of recreational flying.

The ATSB is unable to comment on whether Airborne brand aircraft are involved in disproportionately more accidents and incidents than other weight shift controlled aircraft. The ATSB does not have a dataset with the hours flown by various makes and models in order to be able to make the comparison.

To assist with statistical information on Airborne aircraft in the ATSB's database, I have attached an excel spreadsheet with the occurrence data from 2005 to present. Further searches can be done on the ATSB's public database at <http://www.atsb.gov.au/avdata/>

3. Does the ATSB have any concerns about weight shift controlled aircraft generally, or Airborne brand aircraft specifically, being involved in disproportionately more accidents and incidents than other aircraft?

As per the ATSB Aviation Occurrence Statistics publication, recreational aircraft (non VH- registered), including weight-shift aircraft, are among the riskier types of operations based on accident rates and fatal accident rates. This is recognised by the fact that the types of flying they are allowed to conduct is limited. The Civil Aviation Safety Authority and the recreational aviation authorities would be better placed to explain these restrictions and how they manage the risk.

I trust this response assists with the inquest. If you have any further questions, the ATSB's Manager Legal and Governance, Mr Patrick Hornby, will make himself available to respond. Mr Hornby's number is (02) 6274 8136 and his email Patrick.Hornby@atsb.gov.au.

Yours sincerely

A handwritten signature in blue ink, appearing to read "Greg Hood", is written over a horizontal line. The signature is stylized and somewhat cursive.

Greg Hood
Chief Commissioner and Chief Executive Officer

Attachments

Aviation Occurrence Statistics: 2007 to 2016 (AR-2017-104)
Airborne Aircraft Occurrence Statistics 2005 to 2018.



Australian Government
Australian Transport Safety Bureau

Date range: From 01 Jan 2005 to 09 Apr 2018
Location: All
Occurrence Category: All
Occurrence Type: All
Aircraft and Airspace: Manufacturer: AirBorne Australia - All, AirBorne Edge - All, AirBorne Windsports - All

Attachment A

Date	ATSB Reference Number	Category	ATSB Investigation	Location	Latitude	Longitude	State	Aircraft Manufacturer	Model	Operation Type	Operation Sub Type	Airspace Type	Airspace Class	Summary
5/02/2018	201800321	Accident		Moruya Aerodrome	35° 53.668° S	150° 5.67° E	NSW	Airborne Edge	Airborne Edge X	Private	Pleasure / Travel	CTAF	G	During short final approach, the aircraft stalled and landed heavily resulting in substantial damage.
25/07/2017	201703271	Accident		Scone Aerodrome	32° 2.2332° S	150° 49.932° E	NSW	AirBorne Australia	T-lite	Private	Pleasure / Travel	CTAF	G	During final approach, the aircraft encountered turbulence resulting in a loss of directional control upon landing. The aircraft subsequently veered off the runway, resulting in substantial damage.
23/07/2017	201703243	Serious Incident		Lightning Ridge Aerodrome	29° 27.402° S	147° 59.07° E	NSW	AirBorne Australia	Edge	Private	Pleasure / Travel	CTAF	G	As the aircraft reached 1,500 ft on climb, the engine failed. The pilot conducted a forced landing onto the runway strip, landing before the threshold and subsequently collided with a drain. The pilot received minor injuries and the aircraft sustained minor damage.
21/06/2017	201702848	Incident		Strathalbyn (ALA)	35° 18.702° S	138° 59.4° E	SA	AirBorne Australia	Edge	Flying Training	Training Dual	CTAF	G	During taxi, the undercarriage failed resulting in minor damage.
15/05/2017	201702387	Incident		Gramplans (ALA)	37° 2.898° S	142° 16.2° E	VIC	AirBorne Australia	XT912S	Private	Unknown	CTAF	G	During approach, the crew of the Airborne XT912S observed an aircraft join the circuit on a reciprocal track. The other aircraft subsequently vacated the circuit to increase separation.
24/04/2017	201701777	Accident		Wollongong Aerodrome	34° 33.672° S	150° 47.322° E	NSW	AirBorne Windsports	Edge X912	Flying Training	Training Solo	CTAF	G	The aircraft landed hard and the pilot lost directional control. The aircraft subsequently veered off the runway and colliding with terrain resulting in substantial damage.
21/02/2017	201700731	Accident		Tooradin (ALA)	38° 12.93° S	145° 25.422° E	VIC	AirBorne Australia	Edge	Private	Pleasure / Travel	CTAF	G	During engine start, the aircraft accelerated forward and collided with a light pole resulting in substantial damage.
20/02/2017	201700651	Accident		Yarrowonga Aerodrome	36° 1.728° S	146° 1.722° E	VIC	AirBorne Australia	Edge	Flying Training	Training Dual	CTAF	G	During landing, the aircraft veered off the runway. The crew subsequently attempted a missed approach and collided with the aerodrome fence. The aircraft was substantially damaged and one crew member received serious injuries.
25/11/2016	201604743	Accident	AE-2016-168	Hedlow (ALA)	23° 13.998° S	150° 36.318° E	QLD	AirBorne Windsports	Edge XT-912	Flying Training	Training Dual	OCTA	G	The aircraft collided with terrain. The crew were fatally injured.
10/09/2016	201602734	Accident		Calms Aerodrome, 320° M 45Km (Mowbray)	36° 2.692° S	145° 31.548° E	QLD	AirBorne Australia	Edge	Private	Pleasure / Travel	OCTA	G	While conducting crocodile spotting at 500 ft AGL, the aircraft encountered turbulence resulting in control issues and a loss of altitude. The pilot conducted a forced landing into mangroves resulting in serious injuries to both the pilot and passenger.
30/08/2016	201602454	Accident		near Elmouth (ALA)	22° 2.278° S	115° 5.132° E	WA	AirBorne Australia	Unknown	General Aviation-Unknown	Unknown	OCTA	G	During cruise at 700ft, the engine failed and the pilot conducted a controlled ditching into the ocean.
20/04/2016	201602328	Serious Incident		Yarrowonga Aerodrome	36° 1.728° S	146° 1.722° E	VIC	AirBorne Australia	Edge	Private	Test & Ferry	CTAF	G	During climb, the engine failed and the pilot conducted a forced landing in a field.
17/04/2016	201600537	Serious Incident		Yarrowonga Aerodrome	36° 1.728° S	146° 1.722° E	VIC	AirBorne Australia	Trike	General Aviation-Unknown	Unknown	CTAF	G	During climb, the engine failed and the pilot conducted a forced landing on the remaining runway. The engineering inspection did not reveal the cause of the engine failure.
3/04/2016	201600465	Accident		West Sale Aerodrome, N M 17Km (866 Upper Maffra Newry Road, Newry)	37° 56.532° S	147° 0.432° E	VIC	AirBorne Australia	String3	Private	Unknown	OCTA	G	The powered hang-glider struck power lines and subsequently collided with terrain. The pilot sustained serious injuries.
24/03/2016	201600404	Accident		Canberra Aerodrome, E M 20Km (near Bungendore)	35° 20.73° S	149° 24.6° E	NSW	AirBorne Australia	EDGE XT	Private	Unknown	OCTA	G	The aircraft struck power lines and subsequently collided with terrain. The pilot sustained serious injuries.
13/03/2016	201600333	Accident		Yarrowonga Aerodrome	36° 1.728° S	146° 1.722° E	VIC	AirBorne Australia	Edge	Aerial Work	Survey / Photographic	CTAF	G	The aircraft collided with terrain and was destroyed. The pilot and passenger were fatally injured.
15/01/2016	201600074	Accident		Pinnaroo (ALA), 259° T 24Km	35° 17.67° S	140° 41.022° E	SA	AirBorne Australia		General Aviation-Unknown	Unknown	OCTA	G	During landing, the aircraft encountered a willi-willy and subsequently collided with terrain. The pilot sustained serious injuries and the aircraft was substantially damaged.
6/12/2015	201508340	Serious Incident		Caboortue (ALA)	27° 4.67° S	152° 59.22° E	QLD	AirBorne Australia	Edge	Sports Aviation	Other	CTAF	G	During the climb, the engine failed and the pilot conducted a forced landing on the reciprocal runway.
2/10/2015	201504416	Accident		Busselton Aerodrome, 44° T 21km (near)	33° 33.048° S	115° 33.45° E	WA	AirBorne Australia	Fun Mk 1	General Aviation-Unknown	Unknown	OCTA	G	The hang glider collided with terrain, fatally injuring the pilot.
31/08/2015	201500747	Incident		Coffs Harbour Aerodrome	30° 19.23° S	153° 5.978° E	NSW	AirBorne Australia	Edge	Private	Unknown	CTR	D	During the flight, the pilot reported a rough-running engine.
23/06/2015	201502711	Accident		Yagarah (ALA) (West of Grays Lane)	28° 36° S	153° 35.168° E	NSW	AirBorne Australia	Edge	Private	Unknown	OCTA	G	The aircraft collided with terrain and the pilot sustained fatal injuries.

Date	Accident ID	Accident	Location	Coordinates	State	AirBorne Australia	Classic X	Sports Aviation	Other	CTAF	G	Description
6/06/2015	201502468	Accident	Bindoon (ALA), 045° W 48Km (Lake Nimani)	30° 57.702° S 116° 36.678° E	WA	AirBorne Australia	Edge	Private	Unknown	CTAF	G	During cruise, the engine began to run roughly and the pilot conducted a forced landing onto a dry lake. The nose wheel sank into the ground and the aircraft flipped causing substantial damage.
30/04/2015	201501739	Accident	Pearce Aerodrome, 061° T 50km	31° 27' S 116° 28.278° E	WA	AirBorne Australia	Edge	Other	Unknown	OCTA	G	During landing, the aircraft struck a wire and subsequently collided with terrain. The aircraft was substantially damaged and the pilot received serious injuries.
26/04/2015	201501761	Accident	Leongatha Aerodrome, 254.89° T 61Km (Idicunda)	38° 39.202° S 148° 11.022° E	VIC	AirBorne Australia	Fun	Other	Unknown	OCTA	G	After launching, the hang glider encountered a strong wind gust resulting in a collision with terrain and serious injuries to the pilot.
12/04/2015	201501360	Accident	Glen Innes Aerodrome, 058° M 23km (Dumdee)	29° 36.078° S 151° 54.678° E	NSW	AirBorne Australia	Edge	Private	Pleasure / Travel	OCTA	G	The aircraft collided with terrain resulting in fatal injuries to the two people on board.
29/03/2015	201501207	Accident	Noosa (ALA) (500m off Noosa Bar)	26° 25.398° S 153° 3.798° E	QLD	AirBorne Australia	Edge	Private	Unknown	OCTA	G	The aircraft collided with water and the pilot was seriously injured.
28/03/2015	201502685	Incident	Caboorture (ALA)	27° 4.62° S 152° 59.22° E	QLD	AirBorne Australia	Edge	Private	Unknown	CTAF	G	During the post-flight inspection, a stress fracture was detected on the right hand wing tensioner. Engineers replaced the right and left wing tensioner assemblies.
23/11/2014	201408974	Accident	Newman Aerodrome	23° 25.068° S 118° 48.168° E	WA	AirBorne Australia	Edge	Private	Pleasure / Travel	CTAF	G	During the landing, the right main landing gear collapsed and the propeller struck the runway resulting in substantial damage.
23/11/2014	201408972	Accident	Theodore (ALA), NE M 19Km	24° 53.778° S 150° 14.55° E	QLD	AirBorne Australia	Edge	Private	Other	OCTA	G	While being tow launched, the hang glider collided with terrain and the pilot received serious injuries.
10/11/2014	201408641	Accident	Wellington (ALA)	32° 27.75° S 148° 59.43° E	NSW	AirBorne Australia	C4	Other	Unknown	OCTA	G	During cruise, the engine failed and the pilot conducted a forced landing in a paddock. The aircraft flipped after landing and was substantially damaged.
26/10/2014	201408005	Accident	near Mackay Aerodrome (Merani)	21° 10.302° S 149° 10.782° E	QLD	AirBorne Australia	Edge	Unknown	Unknown	OCTA	G	During landing, the aircraft lost lift and collided with terrain. The pilot sustained minor injuries.
9/10/2014	201408911	Accident	Port Pirie Aerodrome, 119° T 98km (Burra Golf Course)	33° 39.828° S 138° 55.152° E	SA	AirBorne Australia	912	Private	Pleasure / Travel	OCTA	G	During the initial climb, the engine failed and the crew conducted a forced landing into a paddock resulting in minor damage to the landing gear and wing.
4/10/2014	201407613	Serious Incident	Dubbo Aerodrome, SE M 15Km	32° 19.728° S 148° 39.822° E	NSW	AirBorne Australia	Edge	Private	Pleasure / Travel	OCTA	G	During the approach, the pilot became distracted by other traffic in the area and subsequently collided with water abeam the runway resulting in substantial damage.
3/10/2014	201407481	Accident	near Noosa (ALA)	26° 25.398° S 153° 3.798° E	QLD	AirBorne Australia	Edge	Gliding	Pleasure / Travel	CTAF	G	During the initial climb, the engine lost power and the crew conducted a precautionary landing. The engine inspection revealed a leaking fuel pulse line.
0/08/2014	201407169	Incident	White Gum (ALA)	31° 52.092° S 116° 56.852° E	WA	AirBorne Australia	Edge	Flying Training	Training Dual	CTAF	G	During cruise at 1,500 ft AGL, the aircraft began to vibrate and the pilot conducted a precautionary landing in a nearby paddock. An inspection revealed that the propeller had cracked near the hub.
11/06/2014	201405738	Incident	Dubbo Aerodrome, S M 50Km	32° 40.05° S 116° 1.05° E	NSW	AirBorne Australia	Edge	Sports Aviation	Unknown	OCTA	G	While taxiing, the pilot's clothing became entangled in the throttle. The aircraft accelerated and collided with a drain before flipping, resulting in substantial damage.
8/06/2014	201405197	Accident	Lattrobe Valley Aerodrome	38° 12.432° S 146° 28.218° E	VIC	AirBorne Australia	Trike	Private	Pleasure / Travel	CTAF	G	During approach to runway 27, the aircraft collided with a house. The pilot was fatally injured, and the passenger received serious injuries.
27/04/2014	201402665	Accident	near Tyabb (ALA)	38° 16.092° S 145° 10.5° E	VIC	AirBorne Australia	Edge	Other	Unknown	CTAF	G	During the climb, the engine failed and the pilot conducted a forced landing in a field.
21/04/2014	201403854	Serious Incident	Yarrawonga Aerodrome	36° 1.728° S 146° 1.722° E	VIC	AirBorne Australia	Edge	Sports Aviation	Unknown	CTAF	G	During the landing on runway 30, the trike encountered a wind gust and landed hard and veered off the runway. The aircraft sustained minor damage to the left main landing gear.
16/02/2014	201400906	Accident	Caboorture (ALA)	27° 4.62° S 152° 59.22° E	QLD	AirBorne Australia	Edge	Flying Training	Training Dual	CTAF	G	During final approach to the landing area on a beach, the hang gliders speed reduced causing the wing to drop on one side. The pilot lost control before striking an object above the beach. The hang glider was substantially damaged and the pilot was seriously injured.
15/01/2014	201400546	Accident	Sydney Aerodrome, 15° M 26Km (Collaroy Beach)	33° 44.328° S 151° 18.42° E	NSW	AirBorne Australia	Fun	Gliding	Pleasure / Travel	OCTA	G	During the cruise at 3,100 ft, the engine lost power and began to run roughly. The crew returned the aircraft to Yass.
11/01/2014	201400452	Incident	Canberra Aerodrome, 345° T 35Km (near Yass)	35° 0.132° S 149° 5.748° E	NSW	AirBorne Australia	Edge	Private	Pleasure / Travel	OCTA	G	During the landing, the trike encountered a wind gust and bounced. The pilot was unable to regain control and the wing struck the ground resulting in substantial damage.
6/11/2013	2013013070	Accident	Richmond (NSW) Aerodrome, 057° T 72Km (Warnervale (ALA))	33° 14.718° S 151° 25.728° E	NSW	AirBorne Australia	Edge	Private	Other	CTAF	G	The aircraft collided with terrain and the pilot was fatally injured.
28/10/2013	201309734	Accident	Darwin Aerodrome, SE M 28Km	12° 36.12° S 131° 2.832° E	NT	AirBorne Australia	Edge	Sports Aviation	Other	Unknown	Unknown	The aircraft landed on a closed aerodrome.
16/07/2013	201308808	Incident	Tyagarah (ALA)	28° 36° S 153° 33.168° E	NSW	AirBorne Australia	Edge	Sports Aviation	Unknown	CTAF	G	During the approach, the aircraft collided with terrain and was substantially damaged. The pilot suffered serious injuries and the passenger was not injured.
19/05/2013	201304851	Accident	Wagga Wagga Aerodrome	35° 9.918° S 147° 27.978° E	NSW	AirBorne Australia	Edge	Sports Aviation	Unknown	CTAF	G	During refueling, the fuel ignited, due to static electricity, setting the fuel and gerry can on fire. The pilot suffered minor injuries and the aircraft sustained minor damage.
7/04/2013	201303868	Serious Incident	Lamerco (ALA)	35° 22.002° S 140° 28.002° E	SA	AirBorne Australia	Edge	Private	Unknown	OCTA	G	During the approach, the hang glider lost height and subsequently collided with the ground. The pilot suffered serious injuries.
16/03/2013	201303265	Accident	near Tamborine Mountain (HLS)	27° 55.998° S 153° 10.998° E	QLD	AirBorne Australia	Sting	Sports Aviation	Other	OCTA	G	During a spiral turn, the aircraft collided with water. The two occupants were fatally injured and the aircraft was substantially damaged.
6/03/2013	201302118	Accident	Warnervale (ALA), SE M 10Km	33° 19.548° S 151° 29.472° E	NSW	AirBorne Australia	Edge	Sports Aviation	Other	OCTA	G	The hang glider landed hard and sustained minor damage.
16/01/2013	201300501	Incident	Tyagarah (ALA)	28° 36° S 153° 33.168° E	VIC	AirBorne Australia	Edge	Sports Aviation	Other	OCTA	G	During late final approach, the aircraft encountered undershoot windshear. The pilot applied power resulting in the aircraft running off the runway and colliding with the boundary fence. The aircraft sustained minor damage.
15/01/2013	201301015	Incident	St Arnaud Aerodrome, 199° T 23km	36° 46.95° S 143° 6.42° E	VIC	AirBorne Australia	Edge	Private	Unknown	CTAF	G	

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Date	Incident	Location	Coordinates	State	Aircraft	Category	Other	Operator	FAA Code	Outcome	Description
11/01/2013	201300671	near York (ALA)	116° 46.998'E	WA	AirBorne Australia	F2	Other	Other	OCTA	G	While manoeuvring, the hang glider encountered a wind gust and collided with a tree. The pilot suffered minor injuries and the hang glider sustained minor damage.
10/01/2013	201300389	Orange Aerodrome	149° 7.98'E	NSW	AirBorne Australia	Streak III	Unknown	Unknown	CTAF	G	During final approach, the engine lost power and the aircraft landed heavily. The pilot and passenger sustained minor injuries and the aircraft was substantially damaged.
24/12/2012	201212930	Canberra Aerodrome, 45° M 31km	149° 29.172'E	NSW	AirBorne Australia	Revolution	Other	Other	OCTA	G	While preparing to launch, a wind gust caused the glider to lift and collide with a fence resulting in substantial damage.
25/11/2012	201211203	Toowoomba Aerodrome, 118° M 30km	152° 8.802'E	QLD	AirBorne Australia	C4	Unknown	Unknown	OCTA	G	During the flight, the pilot lost directional control and collided with terrain. The pilot suffered minor injuries and the hang glider sustained minor damage.
24/11/2012	201211919	Cervantes (ALA), 166° M 38km	115° 11.418'E	WA	AirBorne Australia	Fun	Other	Other	OCTA	G	During climb in turbulent conditions, the hang glider stalled and collided with terrain. The hang glider was substantially damaged.
28/10/2012	20121026	Bunbury Aerodrome	115° 40.62'E	WA	AirBorne Australia	Outback	Unknown	Unknown	CTAF	G	During the final approach, the aircraft encountered turbulence and collided with terrain. The pilot suffered a minor injury and the aircraft was substantially damaged.
21/10/2012	201210728	Strathalbyn (ALA)	138° 59.4'E	SA	AirBorne Australia	Edge	Training Dual	Training Dual	CTAF	G	During a practice engine takeoff, the aircraft landed hard and subsequently rolled over. The aircraft was substantially damaged and a pilot suffered minor injuries.
20/10/2012	201210115	Beaufort (East) (ALA), 191° M 7km	143° 28.35'E	VIC	AirBorne Australia	Sting	Other	Other	OCTA	G	During the tow launch, the pilot lost directional control and collided with terrain. The pilot was seriously injured and the hang glider was substantially damaged.
18/10/2012	201210568	Wollongong Aerodrome	150° 47.322'E	NSW	AirBorne Australia	Edge	Training Dual	Training Dual	CTAF	G	During the pre-flight inspection, the pilot inadvertently left an engine immobiliser attached to the propeller. When the engine was started, the immobiliser broke causing minor damage.
18/09/2012	201209208	Hervey Bay Aerodrome	152° 52.818'E	QLD	AirBorne Australia	Edge	Unknown	Unknown	CTAF	G	The trike landed heavily and sustained substantial damage. The pilot suffered minor injuries.
11/09/2012	201209286	Cairns Aerodrome, 318° M 30km	145° 35.748'E	QLD	AirBorne Australia	Fun	Other	Other	OCTA	G	During takeoff, the hang glider was caught by a gust of wind. The pilot lost control of the hang glider and collided with the beach. The pilot suffered a minor injury and the hang glider sustained substantial damage.
5/08/2012	201210017	Tyagarah (ALA), 300° M 6km	153° 30.618'E	NSW	AirBorne Australia	Edge	Check & Training	Check & Training	CTAF	G	During a practice forced landing, the trike landed heavily and sustained substantial damage.
27/07/2012	201207674	near Geraldton Aerodrome (Forbes)	114° 42.48'E	WA	AirBorne Australia	Fun	Training Solo	Training Solo	OCTA	G	During the takeoff, the right wing dropped and the glider struck the ground. The glider sustained minor damage.
17/06/2012	201205786	near Acland (VFR)	151° 41.378'E	QLD	AirBorne Australia	C4	Other	Other	CTAF	G	During the initial climb under tow, the hang glider banked to the left and collided with the ground. The pilot was seriously injured.
8/06/2012	201205318	Temora Aerodrome, 360° M 4km	147° 32.25'E	NSW	AirBorne Australia	Edge	Unknown	Unknown	CTAF	G	During approach, the pilot deviated from the intended flight path and the aircraft collided with terrain. The pilot was fatally injured and the aircraft was destroyed. It was suspected that the pilot may have been incapacitated prior to the collision with terrain.
4/06/2012	201206333	near Gulgong (ALA)	149° 33.702'E	NSW	AirBorne Australia	Sting	Other	Other	OCTA	G	During the flight, the pilot lost control of the glider and deployed the emergency parachute. The pilot received minor injuries and the hang glider sustained minor damage.
18/05/2012	201204381	near West Wyalong Aerodrome	147° 11.478'E	NSW	AirBorne Australia	Edge	Other	Other	OCTA	G	The aircraft collided with terrain. The pilot was seriously injured and the aircraft was substantially damaged.
25/04/2012	201207913	near Kingshorpe (VFR) (Mt Storey)	153° 48.878'E	QLD	AirBorne Australia	Fun	Unknown	Unknown	OCTA	G	After launch, the hang glider stalled and collided with terrain. The pilot sustained minor injuries.
25/04/2012	201209717	Adelaide Aerodrome, 194° M 81km (Tunkilla)	138° 12.672'E	SA	AirBorne Australia	Fun	Other	Other	OCTA	G	The paraglider and the hang glider collided. The hang glider spun towards the ground but the pilot recovered and landed with minor damage to the hang glider. The paraglider continued the flight and landed with no damage and a minor injury to the pilot.
13/04/2012	201209850	Wollongong Aerodrome	150° 47.322'E	NSW	AirBorne Australia	Edge	Other	Other	CTAF	G	During the taxi, the downwash from a helicopter overturned the trike resulting in minor damage.
7/04/2012	201202825	near Cootamundra Aerodrome	148° 2.148'E	NSW	AirBorne Australia	Edge	Other	Other	CTAF	G	It was reported that the aircraft collided with terrain. Both occupants were fatally injured.
16/03/2012	201209417	Yeaburn (ALA), SW M 9km	145° 14.082'E	VIC	AirBorne Australia	REVOLUTION	Unknown	Unknown	OCTA	G	During approach, the hang glider collided with terrain. The pilot sustained minor injuries and the hang glider was substantially damaged.
27/01/2012	201202569	Torquay (ALA), 225° M 31km	144° 4.872'E	VIC	AirBorne Australia	FUN	Other	Other	OCTA	G	Shortly after takeoff, the hang glider collided with terrain. The pilot was seriously injured.
2/01/2012	201200056	Bombala (ALA), 042° M 17km	149° 21.372'E	NSW	AirBorne Australia	Edge	Unknown	Unknown	OCTA	G	During the landing, the pilot flared late and the micro-light bounced. The pilot conducted a missed approach but the aircraft struck a fence and collided with terrain. The pilot suffered minor injuries but the micro-light sustained substantial damage.
30/12/2011	201109141	York (ALA), 050° M 6km	116° 51.498'E	WA	AirBorne Australia	Redback	Unknown	Unknown	OCTA	G	During the cruise, the engine failed and the pilot conducted a forced landing in a paddock. A post-flight inspection revealed that the air fan locking nut had detached from the fan.
25/11/2011	201108754	near Sheffield (HLS)	146° 20.55'E	TAS	AirBorne Australia	Edge	Unknown	Unknown	OCTA	G	During a go-around from a high and fast approach, the aircraft struck a fence and collided with terrain. The aircraft was seriously damaged.
18/11/2011	201107973	Somersby (ALA)	151° 18'E	NSW	AirBorne Australia	Edge	Check & Training	Check & Training	CTAF	G	The aircraft landed hard resulting in serious damage to the aircraft. Both crew members suffered serious injuries.
24/04/2011	201102947	near Birdport (ALA)	147° 24.988'E	TAS	AirBorne Australia	Edge	Unknown	Unknown	OCTA	G	It was reported the micro-light aircraft collided with the ground. The pilot-in-command was seriously injured and the student was fatally injured.
6/04/2011	201102495	near Cervantes (ALA)	115° 5.1'E	WA	AirBorne Australia	Edge	Unknown	Unknown	OCTA	G	It was reported that the micro-light conducted a forced landing on a beach.
4/10/2010	201007012	Coffs Harbour Aerodrome, N M 30km	153° 11.868'E	NSW	AirBorne Australia	Edge	Other	Other	OCTA	G	During the landing on a beach, a gust of wind caused the nose to drop resulting in minor damage to the wing.

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Date	Accident ID	Accident	Employee (ALA)	Latitude	Longitude	State	Airborne Australia	Edge	Sports Aviation	Unknown	CTAF	G	Description
15/09/2010	201009169	Accident	Employees (ALA)	12° 37' 00.2" S	131° 3' E	NT	AirBorne Australia	Edge	Sports Aviation	Unknown	CTAF	G	During the landing flare, the trike struck several wallaroos, and came to rest on its side. The pilot received serious injuries and the trike was seriously damaged.
15/09/2010	201006530	Accident	Darwin Aerodrome, 180° M 50km	12° 52' 55" S	130° 51' 02.7" E	NT	AirBorne Australia	Edge	Sports Aviation	Unknown	OCTA	G	During the landing, the pilot took evasive action to avoid wallabies on the airstrip. This resulted in the aircraft flipping several times before impacting the ground. The sole occupant sustained minor injuries but the aircraft was seriously damaged.
7/09/2010	201006359	Accident	near Port Pihle Aerodrome	33° 14' 32.8" S	137° 59' 7" E	SA	AirBorne Australia	Edge	Sports Aviation	Other	OCTA	G	During the take-off run, clover vine wrapped around the wheels, causing the aircraft to become unstable and tip over. The aircraft sustained serious damage.
24/07/2010	201006500	Accident	Strathalbyn (ALA)	35° 19' 59.8" S	138° 59' 4" E	SA	AirBorne Australia	Edge	Flying Training	Training Dual	CTAF	G	After engine start, the aircraft travelled forward and collided with a hangar. Both occupants sustained minor injuries and the aircraft was seriously damaged.
6/07/2010	201009351	Serious Incident	near Williamtown Aerodrome	32° 47' 7" S	151° 50' 07" E	NSW	AirBorne Australia	Edge	Unknown	Unknown	Unknown	Unknown	During the cruise, the engine began to run roughly and the pilot conducted a precautionary landing on a beach. Carburetor icing was suspected to have caused the rough running.
18/05/2010	201009588	Accident	French Island (ALA)	38° 23' 58.2" S	145° 23' 98.2" E	VIC	AirBorne Australia	Edge	Sports Aviation	Other	OCTA	G	During the take-off run, the aircraft struck an embankment and cartwheeled into the dam. The microflight was seriously damaged and the pilot received minor injuries.
15/08/2009	200908479	Accident	Cunderdin Aerodrome, 222A M 38km (White Gum Farm)	31° 52' 81.8" S	116° 57' 168" E	WA	AirBorne Australia	Edge	Unknown	Unknown	Unknown	Unknown	During the initial climb to approximately 90 feet, the pilot lost control of the ultralight and collided with terrain. The aircraft was destroyed and the pilot sustained minor injuries.
5/08/2009	200904760	Accident	Hopetoun Aerodrome, 209* M 15km	35° 50' 14.8" S	142° 16' 398" E	VIC	AirBorne Australia	Edge	Sports Aviation	Unknown	OCTA	G	<P>it was reported that the microflight collided with terrain and the sole pilot sustained fatal injuries.</P>
6/06/2009	200909422	Accident	Marland Aerodrome	32° 42' 49.8" S	151° 29' 298" E	NSW	AirBorne Australia	Trike	Sports Aviation	Unknown	CTAF	G	During landing, the ultralight aircraft impacted the ground. The pilot received fatal injuries.
21/10/2008	200806703	Accident	Kununurra Aerodrome	15° 47' 88.2" S	128° 42' 45" E	WA	AirBorne Australia	X-503	Sports Aviation	Other	Unknown	G	During the landing, the ultralight collided with terrain.
19/10/2008	200806682	Incident	Bald Hill	36° 55' 27.2" S	143° 40' 428" E	VIC	AirBorne Australia	Fun	Sports Aviation	Other	OCTA	G	During the landing in the hang glider, the pilot struck the control frame and then struck the ground. The pilot received minor facial injuries.
21/06/2008	200804755	Serious Incident	Tumut Aerodrome	35° 46' 77" S	148° 14' 448" E	NSW	AirBorne Australia	Edge	Sports Aviation	Unknown	CTAF	G	During the initial climb, the crew of the Jabiru observed a trike approximately 100 meters in front of them on descent to land. The crew of the Jabiru took evasive action.
29/05/2008	200803656	Accident	Kinglake (VFR)	37° 31' 33.2" S	145° 21' 978" E	VIC	AirBorne Australia	Edge	Sports Aviation	Unknown	OCTA	G	It was reported that the powered hang glider collided with terrain.
23/03/2008	200801983	Accident	Laura (ALA), 5 M 11km	15° 38' 59.2" S	144° 27' 252" E	QLD	AirBorne Australia	Edge	Sports Aviation	Other	OCTA	G	During the initial climb, the engine failed. The pilot conducted a forced landing, but during the landing the aircraft hit rocks and flipped on its back. The pilot suffered serious injuries but the passenger was uninjured.
7/01/2008	200800205	Incident	Clare (HLS)	33° 50' 23.2" S	138° 36' 852" E	SA	AirBorne Australia	Edge	Sports Aviation	Unknown	OCTA	G	The ultralight was on approach in a crosswind. As it descended below the height of nearby trees, the aircraft encountered windshear, lost lift and landed heavily. Post-flight inspection revealed a bend in the mast.
16/12/2007	200708256	Accident	Cessnock (ALA), E M 17km	32° 49' 47" S	151° 30' 93" E	NSW	AirBorne Australia	Edge	Flying Training	Training Solo	OCTA	G	During a supervised solo flight, the aircraft experienced a complete engine failure. The pilot was forced to land in a fenced paddock, clipping a top wire of the fence close to touch down. The aircraft impacted the ground heavily. The pilot sustained a broken left wrist, minor cuts and abrasions, and shock.
25/11/2007	200708530	Incident	Rose Bay (ALA)	33° 52' 00.2" S	151° 15' 498" E	NSW	AirBorne Australia	Edge	Private	Pleasure / Travel	PRD	PRD	During the taxi, a large wash from a passing boat caused the float trike to capsize.
25/11/2007	200707766	Incident	Rose Bay (ALA)	33° 52' 00.2" S	151° 15' 498" E	NSW	AirBorne Australia	Edge	Unknown	Unknown	PRD	PRD	While taxiing for a water departure, the aircraft struck the wake of a boat and capsized.
25/09/2007	200706586	Serious Incident	Mareeba Aerodrome, NE M 13km	16° 59' 53.2" S	145° 30' 938" E	QLD	AirBorne Australia	Outback	Private	Unknown	OCTA	G	During the cruise, the engine failed. The pilot was able to conduct a successful forced landing in a paddock.
20/07/2007	200704683	Accident	Tumut Aerodrome	35° 15' 06.8" S	148° 14' 448" E	NSW	AirBorne Australia	Edge	Sports Aviation	Other	CTAF	G	The pilot started the engine with the external 'pull start' mechanism. On re-entering the aircraft, the pilot's leg caught the throttle handle and the engine went into high power. The unmanned aircraft then moved forward at speed and impacted a Jabiru aircraft.
20/10/2005	200506347	Accident	5km E Mareeba, Aerodrome	17° 4' 00.2" S	145° 27" E	QLD	AirBorne Australia	EDGE	Sports Aviation	Other	OCTA	G	AUSSAR advised the ATSB that a micro-light aircraft was found to have impacted the ground. The pilot was fatally injured.
2/10/2005	200504975	Accident	Batchelor, (ALA)	13° 31" S	131° 1' 002" E	NT	AirBorne Australia	Edge	Sports Aviation	Unknown	OCTA	G	The gyrocopter crashed at Coomali Creek. The pilot was fatally injured and the gyrocopter was destroyed.



Jeremy Dwyer
Senior Case Investigator
Coroners Prevention Unit.
<Via email: jeremy.dwyer@courts.vic.gov.au>

Dear Jeremy

Re: Coronial investigation into deaths of Ian Cook (20161157) and Quoc Huong Vu (20161158)

In response to the questions posed:

1/. *Does the HGF A hold data on the types of aircraft involved in the accidents and incidents it investigates?*

Yes.

2/. *If the HGF A holds such data, does the data confirm or refute either of the following:*

(a) that weight shift controlled aircraft generally are involved in disproportionately more accidents and incidents than other types of aircraft; and/or (b) that Airborne brand aircraft are involved in disproportionately more accidents and incidents than other weight shift controlled aircraft?

(a) No

(b) Yes. For the simple reason that around 90% of the weightshift aircraft registered in Australia, with the HGFA, are Airborne aircraft.

3/. *Does the HGFA hold any concerns about weight shift controlled aircraft generally, or Airborne brand aircraft specifically, being involved in disproportionately more accidents and incidents than other aircraft?*

No.



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We have checked the data available on HGFA registered Weightshift Microlight aircraft accidents and could not find a disproportionate indication of problems with Airborne aircraft, in particular with the Arrow wing.

We have had discussions with Jill Bailey (Recreational Aviation Australia), David Cookman and Peter McLean (both HGFA Weightshift Microlight Chief Flight Instructors) about possible concerns with the Arrow wing.

The overwhelming consensus was that the Arrow wing is a high performance wing, tuned for high speed. All were of the opinion that pilots have not been maintaining a sufficient speed for this wing, whilst in the circuit and as such there is a possibility of stalling or spinning the wing, when turning onto base or final.

We believe that a pilot should receive some familiarization flights, with an instructor before flying any high performance Weightshift Microlight wing.

Note: For the purpose of answering the above questions, I/we have assumed that you have been specifically referring to Weightshift Microlight aircraft and have excluded Hang Gliders and Paragliders, which are also deemed to be weightshift aircraft.

Regards,



Brett Coupland
COO & Operations Manager
Hang Gliding Federation of Australia.

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17 April 2018

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Dear Jeremy,

I write in response to the letter from you dated 26 March 2018 requesting further information regarding the Coronial investigation into the deaths of Ian Cook and Quoc Huong Vu. The information provided within this letter is based on 30 months of Occurrence Management System data between the dates of 1 October 2015 to 1 April 2018.

In response to your questions:

Does RAAus hold data on the types of aircraft involved in the accidents and incidents it investigates?

Yes. The RAAus Occurrence Management System is a reporting system used to report, investigate and analyse accident and incident data.

**If RAAus holds such data, does the data confirm or refute either of the following:
that weight shift controlled aircraft generally are involved in disproportionately more accidents and incidents than other types of aircraft;**

Weightshift aircraft are flown in different flight regimes to that of 3 axis aircraft. The sport evolved from historical non-powered hang gliding. As a result, pilots flying weightshift aircraft are actually best compared to the difference between driving a car and riding a motorcycle. Some people prefer bikes, others cars. Within the RAAus community, some prefer 3 axis aircraft while others enjoy the open cockpit nature of weight shift aircraft.

As such the lack of rigid structure around the pilot in a weight shift aircraft can result in a higher injury or death rate in the event of an accident.

It would be more accurate to say, weightshift aircraft accidents may result in a higher risk of injury or death due to the lack of crash protection inherent in the design of the aircraft. A risk known to all those who operate them, similar to motorcycles.

It is therefore not appropriate nor meaningful to compare the accident rates between RAAus 3 axis and weightshift aircraft.

and/or

that Airborne brand aircraft are involved in disproportionately more accidents and incidents than other weight shift controlled aircraft?

No.

RAAus has 236 weightshift aircraft registered of which 185 are Airborne aircraft. Our total aircraft fleet comprises some 3,250 aircraft. Airborne products account for 78% of all registered weightshift aircraft within our fleet.

Within the sample period there were 18 weightshift accidents and incidents of which 16 were Airborne branded. RAAus considers this accident and incident rate in weightshift aircraft proportionate to the total number of Airborne weightshift aircraft registered.

The data does not support the assertion that Airborne aircraft are disproportionately involved in more accidents.

Does RAAus hold any concerns about weight shift controlled aircraft generally, or Airborne brand aircraft? No. Although, RAAus is on a continuous pathway of improvement for all types of aircraft. As an example, RAAus has a specific project in place working with the Hang Gliding Federation of Australia (HGFA). The focus of this project is to standardise the training provided by RAAus and HGFA Chief Flying Instructors by ensuring practical training is delivered and managed between the two organisations.

Yours Sincerely



Michael Linke
CEO