

CAA Safety Investigation Report
Loss of control in-flight
U-Turn GMBH 'Black Out' paraglider
Queenstown 22 April 2017

CAA Final Report 17/2075

31 May 2018

What happened

At approximately 9.55am NZST¹ on Saturday 22 April 2017 a paraglider wing pilot took off from the lower launch area at the top of the Skyline Gondola, Queenstown, intending to land in a designated area inside the Queenstown Primary school ground. A commercial tandem paraglider flight [pilot] observed the paraglider wing conducting aerobic manoeuvres called 'infinity loops'². These loops were also witnessed by members of the public in the school grounds. The pilot was seen to carry out six loops, however on the seventh, the pilot was seen to fall into the paraglider wing, causing it to collapse. The pilot was unable to recover, falling approximately 290 feet (approximately 9 seconds) into the school grounds. The pilot died as a result of injuries received from the accident.

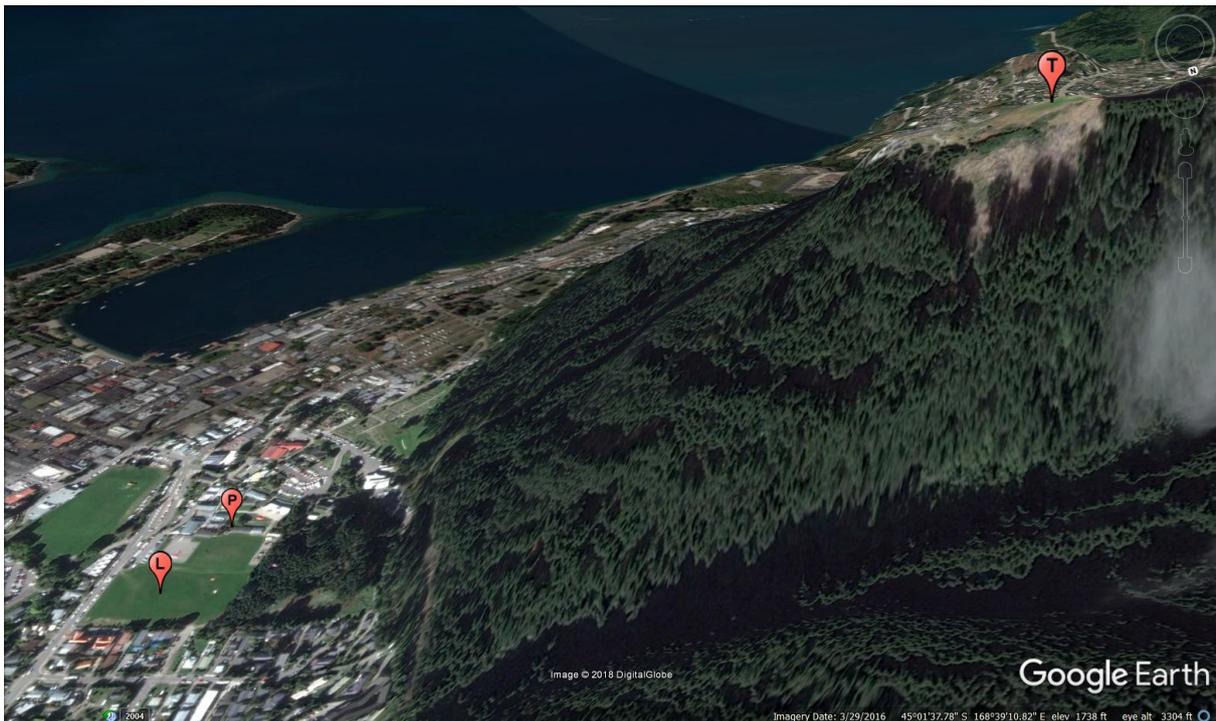


Figure 1. Launch site (T), Landing site (L) and Accident site (P) (adapted Google Earth image)

Analysis of the circumstances of the flight

The pilot held an advanced (P3) and commercial tandem rating (PGTC)³ for paragliding. The pilot was carrying out a private flight, having completed work for the local commercial operator. The paraglider wing had a current Warrant of Fitness and during post-accident examination no defects were found which may have contributed to the accident.

Weather conditions at the time of the accident were reported as fine and acceptable for the experienced pilot to operate in.

¹ New Zealand Standard Time (NZST) is +12 hours ahead of Greenwich Mean Time (GMT).

² The pilot flies the paraglider wing into consecutive loops, rotating in a vertical pendulous motion, requiring precise inputs of the flight controls and timing to exit the manoeuvre successfully.

³ Pilots hold ratings for their individual skill sets which are issued by the New Zealand Hang Gliding and Parachute Association. The pilot held ratings as PGTC (Paraglider Tandem Commercial) and PG3 (advanced).

The pilot had been practising the aerobatic manoeuvre for approximately three months and had been witnessed by other experienced pilots to be competent. The infinity loop is considered an advanced and competition type manoeuvre. It is generally carried out at a height above ground allowing sufficient time to recover should an in-flight emergency occur. The number of loops is also predicated on the available height above the ground in which to recover. The launch site was at 2604 feet above mean sea level (amsl) with the intended landing site at 1048 feet amsl. It is considered that a recovery or deployment of the reserve chutes would not have been possible due to:

- the number of loops carried out;
- the cumulative loss of height; and
- the manner in which the pilot was contained in the paraglider wing.

The intended landing area

The intended landing site at the school sports field was used regularly by the pilot, both privately and when working. For commercial paragliding operations, Civil Aviation Rules Part 115.219⁴ requires that a person operating to a landing area ensure they have procedures in place to confirm that it is safe. It is accepted that the pilot was conducting a private flight, and therefore the aspects of a commercial operation are not applicable. However, this safety investigation found that the area was not readily identifiable as a landing area, except for the presence of a windsock. At the time the accident occurred a night market was being set up, placing members of the public in close proximity to the landing area. With the landing area accessible at all times to both private and commercial operations, the risk to third parties is always present.

The CAA safety investigation was informed that the school had an agreement with the commercial operator, permitting landings. The Health and Safety at Work Act 2015 (HSWA) considers that the use of a site for a commercial purpose, such as the landing area, creates a 'person conducting a business or undertaking'⁵ or PCBU relationship. In this case the relationship is between the primary school and the commercial paragliding organisation. The suitability of the school sports field as a landing site has been referred to the CAA Health and Safety Unit and the CAA Special Flight Operations, Recreational Aviation and RPAS Unit for consideration.

Summary and recommendations

The pilot was considered to be suitably qualified and sufficiently experienced to carry out the aerobatic manoeuvres. The video evidence and witness accounts revealed that six of the infinity loops were completed without incident. Experienced paragliders commented during the safety investigation that infinity loops were highly technical and required accurate timing of flight control (brakes) inputs to manage the manoeuvre. In competition events it was considered that three revolutions was a standard example. The continuum of multiple infinity loops conducted over a short distance in height did not provide sufficient room for recovering from a loss of control.

⁴ Civil Aviation Rule Part 115.219 *Use of aerodromes, landing areas and launch site.*

https://www.caa.govt.nz/assets/legacy/rules/Rule_Consolidations/Part_115_Consolidation.pdf

⁵ Definition of PCBU from *Worksafe*, New Zealand website <https://worksafe.govt.nz/managing-health-and-safety/getting-started/understanding-the-law/primary-duty-of-care/who-or-what-is-a-pcbu/>

Aerobatic flights should be conducted at a height above ground at which a pilot can manage an inflight emergency, and recover the aircraft. A pre-flight assessment of the manoeuvres to be carried out, and the amount to be conducted, could be discussed with peers to provide an objective risk assessment. During the manoeuvres pilots need to maintain an appropriate level of situational awareness of their surroundings, to ensure a suitable safety margin is maintained.

The use of the sports field as a commercial landing area created a business arrangement between the school and commercial paragliding company. Such arrangements between entities should be managed with a view to ensuring that those involved are fully aware of their requirements under HSWA. This is in an effort to manage not only both parties' risks and responsibilities, but also those of third parties who may unwittingly be at risk.

Safety actions

Pilots should maintain a suitable safety margin

During the New Zealand Hang Gliding and Paragliding Annual General meeting in September 2017, a CAA Safety Investigator took the opportunity, while presenting, to highlight the importance of having suitable safety margins when conducting paragliding wing flights.

CAA Health and Safety investigation

The CAA has been managing an informative and collaborative approach with the primary school and commercial organisation, to ensure an understanding of the responsibilities of both parties around this aviation activity. This is aimed at considering the continuity of this activity based around risk identification and elimination.

Accident Data Summary

Aircraft make and model, registration and:	U-Turn GMBH Black Out paraglider, serial number TC-BLO-17-38SK-1558
Year of manufacture:	September 2016
Accident Date and time:	22 April 2017, 1130 hours
Location:	Latitude: S45° 01'41.57" Longitude: E168° 39'29.46"
Altitude:	1064 feet amsl
Type of flight:	Private
Persons on board:	Crew: 1
Injuries:	Crew: Fatal
Nature of damage:	Aircraft damaged
Pilot's licence:	Paraglider 3 (Advanced) and Paraglider Tandem Commercial
Pilot's age:	27 years
Information sources:	Civil Aviation Authority field investigation.
Investigator in Charge:	Mr P B Breuilly

About the CAA

New Zealand's legislative mandate to investigate an accident or incident is prescribed in the Transport Accident Investigation Commission (TAIC) Act 1990 and Civil Aviation Act 1990 (the CA Act). Following notification of an accident or incident, TAIC may conduct an investigation. CAA may also investigate subject to Section 72B(2)(d) of the CA Act which prescribes the following:

72B Functions of Authority

(2) The Authority has the following functions:

- (d) To investigate and review civil aviation accidents and incidents in its capacity as the responsible safety and security authority, subject to the limitations set out in section [14\(3\)](#) of the [Transport Accident Investigation Commission Act 1990](#)

The purpose of a CAA safety investigation is to determine the circumstances and identify contributory factors of an accident or incident, with the aim of minimising or reducing the risk to an acceptable level, of a similar occurrence arising in the future. The safety investigation does not seek to ascribe responsibility to any person but to establish the contributory factors of the accident or incident based on the balance of probability.

A CAA safety investigation seeks to provide the Director of Civil Aviation with the information required to assess which, if any, risk-based regulatory intervention tools may be required to attain CAA safety objectives.

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