

AIRCRAFT ACCIDENT REPORT

**SOCIETE SIREN PIK-30
ZK-GST**

IMPACT WITH TERRAIN

OMARAMA

18 JANUARY 2012



Foreword

As a signatory to the Convention on International Civil Aviation 1944 (the Chicago Convention) New Zealand has international obligations in respect of the investigation of accidents and incidents. Pursuant to Articles 26 and 37 of the Chicago Convention, the International Civil Aviation Organisation (ICAO) issued Annex 13 to the Convention setting out International Standards and Recommended Practices in respect of the investigation of aircraft accidents and incidents.

New Zealand's international obligations are reflected in the Civil Aviation Act 1990 (the Act) and the Transport Accident Investigation Commission Act 1990 (the TAIC Act).

Section 72B(2)(d) and (e) of the Civil Aviation Act 1990 Act also provides:

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](#):
- (e) To notify the Transport Accident Investigation Commission in accordance with section [27](#) of this Act of accidents and incidents notified to the Authority:

Following notification to the Transport Accident Investigation Commission (“the Commission”) of any accident or incident which is notified to the Authority, an investigation may be conducted by the Commission in accordance with the TAIC Act. CAA may also investigate subject to the requirements of the TAIC Act.

The purpose of an investigation by the Commission is to determine the circumstances and causes of accidents and incidents with a view to avoiding similar occurrences in the future, rather than to ascribe blame to any person.

CAA however investigates aviation accidents and incidents for a range of purposes under the Act. Investigations are primarily conducted for the purpose of preventing future accidents by determining the contributing factors or causes and then implementing appropriate preventive measures - in other words to restore safety margins to provide an acceptable level of risk. The focus of CAA safety investigations is therefore to establish the causes of the accident on the balance of probability.

Accident investigations do not always identify one dominant or ‘proximate’ cause. Often, an aviation accident is the last event in a chain of several events or factors, each of which may contribute to a greater or lesser degree, to the final outcome.

CAA investigations may also inform other regulatory-safety decision making or enforcement action by the Director.

In the case of a fatal aviation accident, the final CAA investigation report will generally be highly relevant to an inquiry, and in some circumstances, an inquest, conducted by a Coroner.

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Glossary of abbreviations:

amsl	above mean sea level
C	Celsius
CAA	Civil Aviation Authority
E	east
ft	foot or feet
GNZ	Gliding New Zealand
GPS	Global Positioning System
KIAS	Knots Indicated Air Speed
kt(s)	knot(s)
m	metre(s)
NM	nautical mile(s)
NZDT	New Zealand Daylight Time
RCCNZ	Rescue Coordination Centre New Zealand
S	south
UTC	Coordinated Universal Time
VHF	very high frequency

Data summary

Aircraft type, serial number and registration:	Societe Siren PIK-30, s/n 717 ZK-GST
Number and type of engines:	One Rotax 505
Year of manufacture:	1985
Date and time of accident:	18 January 2012, 1815 hours ¹
Location:	Snowy Peak Mountain 11 NM North-West of Omarama Aerodrome Latitude ² : S 44° 23' 32.4" Longitude: E 169° 45' 42.5"
Type of flight:	Private
Persons on board:	Crew: 1
Injuries:	Crew: 1 Fatal
Nature of damage:	Glider destroyed
Pilot-in-command's licence:	GNZ B Certificate
Pilot-in-command's age:	60 years
Pilot-in-command's total flying experience:	255 hours, 70.5 on type
Information sources:	Civil Aviation Authority Field Investigation
Investigator in Charge:	Mr C Grounsell

¹ All times in this report are NZDT (UTC + 13 hours)

² WGS-84 co-ordinates

Synopsis

At approximately 1530 hours on 18 January 2012, a Societe Siren PIK-30 glider registered ZK-GST, departed Omarama Aerodrome using its retractable engine to self launch. A fellow glider pilot later observed it ridge soaring along the western side of a range north-west of the aerodrome³. The pilot then observed it commence a right turn towards terrain and continue to roll and descend. The glider struck the terrain, approximately 11 NM north-west of Omarama Aerodrome, at approximately 1815 hours. The glider was destroyed and the pilot was fatally injured.

The Civil Aviation Authority (CAA) was notified of the accident at 2050 hours on 18 January 2012. The Transport Accident Investigation Commission was in turn notified shortly thereafter, but declined to investigate. The CAA Commenced a Field Investigation the following day.

1. Factual Information

1.1 History of the flight

- 1.1.1 On the day of the accident, the pilot completed the daily inspection of glider ZK-GST and prepared it for the flight. The New Zealand Club Class Glider Championship competition was taking place at the aerodrome that day and the pilot had waited until all the contest gliders had launched before positioning ZK-GST on the runway. A self launch was carried out and the solo flight commenced at approximately 1530 hours.
- 1.1.2 The flight was for recreational purposes and there was no set task. Two other glider pilots, flying gliders ZK-GMU and ZK-GHY, were in the area and a VHF radio communications channel had been organised for the three pilots to communicate.
- 1.1.3 The pilot of ZK-GMU observed ZK-GST ridge soaring on the western side of Snowy Top Mountain. ZK-GST was level with the top of the mountain, tracking back and forth parallel to the ridge line.
- 1.1.4 The pilot of ZK-GMU joined the pilot of ZK-GST over the western face of Snowy Top Mountain where both gliders ridge soared and engaged in casual conversation. The pilots discussed tracking north towards the Ohau Range using the ridge lift.
- 1.1.5 Immediately prior to the accident, both gliders were tracking north with the ridge to their right. At this point the pilot of ZK-GMU was in a position in which he could fully observe the flight path of ZK-GST. ZK-GST was seen to initiate a turn to the right towards the rising ground. Continuing the turn, the glider entered a nose down attitude, continued to roll to the right and gained speed. The nose down attitude steepened with the glider sustaining the roll to the right until striking the ground.
- 1.1.6 The pilot of ZK-GMU who witnessed the event and who is also an instructor, thought that the pilot of ZK-GST had enough speed and clearance to have recovered the situation, he stated “*From where I was I thought that [the pilot] had enough*

³ Ridge soaring involves seeking lift where the wind blows against the face of a hill/mountain slope and is forced to rise.

speed and clearance that he could have pulled out and cleared the hill easily. He did not pull out and the glider took a straight dive into the hill”.

- 1.1.7 The pilot of ZK-GMU immediately informed the pilot of ZK-GHY and then returned to Omarama Aerodrome. The pilot of ZK-GHY called personnel at Omarama Aerodrome and informed them of the accident.
- 1.1.8 At approximately 1817 hours the glider control centre at Omarama Aerodrome received message of the accident. The aero-tow aircraft was dispatched to look for the glider. At approximately 1848, hours a message was received that the ZK-GST had been located on the western face of Snowy Top Mountain, approximately 200 ft below the summit.
- 1.1.9 The Contest Director notified the RCCNZ and informed the local police. The first emergency personnel on scene found the pilot deceased.
- 1.1.10 The glider had struck the slope inverted, while rolling to the right, at high speed. The accident occurred in daylight, at approximately 1815 hours, 11 NM north-west of Omarama Aerodrome near Snowy Top Mountain, at an elevation of 5400 ft amsl. Latitude S 44° 23' 32.4", longitude E 169° 45' 42.5".

1.2 Injuries to persons

<i>Injuries</i>	<i>Crew</i>	<i>Passengers</i>	<i>Other</i>
Fatal	1	0	0
Serious	0	0	0
Minor/None	0	0	

1.3 Damage to aircraft

- 1.3.1 The glider was destroyed.

1.4 Other damage

- 1.4.1 Nil.

1.5 Personnel information

- 1.5.1 The pilot held a GNZ B Certificate awarded by the Canterbury Gliding Club and held a current Class II Medical Certificate. The pilot’s last Biennial Flight Review was completed and signed off satisfactory in October 2010. At the time of the accident the pilot had a total of 252 hours gliding experience logged, involving 203 flights. The pilot had logged 70 hours in ZK-GST. In addition, the pilot had flown ZK-GST for 3 hours the day before the accident flight.
- 1.5.2 On the day of the accident, the pilot was reported to be in good spirits and was looking forward to the flight. One of the tow plane pilots, assisting with the New Zealand Club Class Glider Championship, stated: *“I have known [the pilot] for several years and discussed his glider and a general catch up prior to his take off. He appeared fit and well and was looking forward to a good flight”.*

1.6 Aircraft information

- 1.6.1 The Societe Siren PIK-30 is a single-seat, 17 m wingspan sailplane constructed from fibre-glass. It has a mast mounted, manually actuated, retractable engine and propeller making the glider capable of self-launching and powered flight.
- 1.6.2 The Societe Siren PIK-30 glider, serial number 717, was first registered as ZK-GST in New Zealand in 1985. At the time of the accident the glider had a current Certificate of Airworthiness in the standard category.
- 1.6.3 On 15 November 2011 the last Annual Inspection of the glider had been carried out concurrently with the Annual Review of Airworthiness (ARA) inspection. The last recorded scheduled maintenance performed was completed on 22 November 2011 encompassing avionics tests and inspections. No discrepancies or defects were noted.

1.7 Meteorological information

- 1.7.1 At the time of the accident the meteorological conditions were forecast and reported to be little or no cloud coverage with good visibility. The prevailing wind in the vicinity of the accident site was approximately 280 degrees at 15 kts.
- 1.7.2 Weather was not considered to be a factor in this accident.

1.8 Aids to navigation

- 1.8.1 The pilot was carrying a handheld Garmin GPS unit, however this was damaged in the accident and no usable data could be gathered.

1.9 Communications

- 1.9.1 The glider was equipped with a VHF radio.
- 1.9.2 The pilot was in communication with the other glider pilots during the flight.
- 1.9.3 No communication was heard from the pilot immediately prior to or during the accident sequence.

1.10 Aerodrome information

- 1.10.1 Not applicable.

1.11 Flight recorders

- 1.11.1 Not applicable.

1.12 Wreckage and impact information

- 1.12.1 The accident occurred on sloping terrain near the summit of Snowy Top Mountain. The glider struck the terrain, on a heading of approximately 180 degrees. Ground impact marks and damage to the glider indicated that it struck the ground inverted with an approximate attitude of 70 degrees nose-down. The airspeed indicator was found with its needle trapped, due to damage, indicating 75 kts.

- 1.12.2 Severe damage to the right wing and lesser damage to the left indicated that the glider was rolling to the right at the time it struck the ground.
- 1.12.3 Impact forces had significantly disrupted the cockpit and caused the tail boom to fail forward of the empennage. The glider came to rest upright on a reciprocal heading.
- 1.12.4 As far as could be determined, control integrity was established at the accident site.

1.13 Medical and pathological information

- 1.13.1 Post-mortem examination showed that the pilot died of injuries consistent with a high-energy impact.
- 1.13.2 The post-mortem report did not reveal anything which was likely to cause pilot incapacitation.
- 1.13.3 The pilot's last application for a medical certificate and associated medical examination did not identify any medical history which would indicate a higher risk of incapacitation.
- 1.13.4 However it was noted that there was a history of the pilot sustaining a head injury in 2007. This history was considered at the time of the pilot's application in 2009 and a neurologist opinion obtained. The neurologist, an experienced specialist in aviation medicine advised that the applicant was neurologically fit to fly as his risk of post traumatic epileptic seizure was not much different from that of the general population⁴.
- 1.13.5 The results of toxicological testing showed no alcohol or drugs present in the pilot's blood.

1.14 Fire

- 1.14.1 Fire did not occur.

1.15 Survival aspects

- 1.15.1 The accident was not survivable due to the high energy impact forces involved.
- 1.15.2 The pilot was wearing a Security Safety-Chute 150 parachute, however there were no indications that the pilot attempted to deploy it.
- 1.15.3 An Accusat MT 410G Personal Locator Beacon was located near to the glider wreckage, however it showed no sign of attempted or actual activation.

1.16 Tests and research

- 1.16.1 Nil.

1.17 Organisational and management information

- 1.17.1 Not applicable.

⁴ An epileptic seizure is a transient occurrence of signs and/or symptoms due to abnormal excessive or synchronous neuronal activity in the brain.

1.18 Additional information

- 1.18.1 A gliding instructor, who has known the pilot of ZK-GST for over three years, described him as being a conscientious, reliable and competent pilot.
- 1.18.2 Under the Instructors' Resources section of the GNZ web site is a set of QGP Ground Course Notes titled; 'Teaching Notes for "Qualified Glider Pilot" Certificate Ground Course' Compiled by Graham Wardell for the Auckland Gliding Club Inc, 15 August 2001. These notes, provided to help instructors in all clubs, under the section titled 'Ridge soaring', state '*When ridge soaring, turns must always be made away from the ridge*'.
- 1.18.3 Also included in the Instructors' Resources section of the GNZ web site is a set of instructors manuals including 'Instructor's Handbook – Part 2, Introduction to Gliding Training & Sequence of Instruction', revision date 28/04/2001. This manual, under the section titled 'Sequence of Instruction', states '*The teaching of the techniques of soaring and cross-country flying should be integrated into the basic training scheme at the earliest possible time*'.
- 1.18.4 It was also stated by the glider pilot who witnessed the accident "*I would never teach a person to turn towards rising ground. It is a common fact of gliding to always turn away from the hill. It is emphasised to students to turn away*".
- 1.18.5 GNZ as part of their Safety Information section of their web site includes a 'Safety in Mountain Flying' article, issued by the French National Gliding Centre. This document, under the section titled 'Safety: Using common-sense rules', states '*Never turn towards the slope, but always turn towards the valley, upwind of the slope*'.

1.19 Useful or effective investigation techniques

- 1.19.1 Not applicable.

2. Analysis

- 2.1 The possible reason for the glider to have departed from controlled flight was considered to be either that the pilot mishandled an intentional manoeuvre or the pilot experienced some degree of incapacitation, affecting the pilot's ability to control the glider.
- 2.2 The pilot of ZK-GST should have been made aware during training and in conversation with instructors and other pilots that when flying in this environment, it is not advisable to turn towards the rising terrain and that any turn should be made away, towards the valley.
- 2.3 The fellow pilot who witnessed the accident sequence believed that it was an unusual manoeuvre for the pilot of ZK-GST to turn towards terrain.
- 2.4 Comments made by a gliding instructor who had known the pilot of ZK-GST for over three years describe the pilot as competent and conscientious. In addition, the pilot of ZK-GST had been successfully ridge soaring in this area for approximately 2 hours prior to the accident and had also flown 3 hours the previous day. Furthermore, prior to the accident flight the pilot appeared to be both mentally and physically fit to fly.

- 2.5 During the final phase of flight, the fact that no apparent attempt was made to recover the glider suggests that the pilot of ZK-GST may have experienced some degree of incapacitation; however this could not be positively established.
- 2.6 Although the pilot of ZK-GST was wearing a parachute there was no apparent attempt made to bail-out of the glider and use the parachute. This could also suggest that the pilot had been incapacitated to some degree.

3. Conclusions

- 3.1 The pilot was appropriately rated and fit to carry out the flight.
- 3.2 The turn towards rising terrain is considered to be an unusual manoeuvre.
- 3.3 Once the right turn had commenced, no apparent attempt was made to recover the glider before it struck the ground.
- 3.4 The safety investigation could not establish with any certainty the cause(s) which led to the glider striking the ground.
- 3.5 On balance of the information available it is considered that the cause of the accident may have been due to some degree of pilot incapacitation.
- 3.6 The accident was not survivable.

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