NO. 94-002

SCHEMPP-HIRTH HS7 MINI NIMBUS GLIDER

ZK-GLO

3KM SOUTH-EAST OF BOMBAY

15 JANUARY 1994

ABSTRACT

This report explains the loss of control and collision with terrain of Schempp-Hirth Mini Nimbus glider ZK-GLO on 15 January 1994. Safety issues discussed relate to pilot decision-making and out-landing procedures.

TRANSPORT ACCIDENT INVESTIGATION COMMISSION

AIRCRAFT ACCIDENT REPORT NO 94-002

Aircraft Type, Serial Number and Registration:	Schempp-Hirth HS7 Mini Nimbus glider, 25 ZK-GLO
Number and Type of Engines:	Nil
Year of Manufacture:	1977
Date and Time:	15 January 1994, 1620 hours*
Location:	3 km south-east of Bombay Latitude: 37° 12.7' south Longitude: 175° 00.7' east
Type of Flight:	Private
Persons on Board:	1
Injuries:	1 Fatal
Nature of Damage:	Substantial: fuselage, wing
Pilot in Command's Licence:	NZGA Gliding Certificate; Silver Badge
Pilot in Command's Age:	52
Pilot in Command's Total Flying Experience:	156 hours/352 launches 19 hours/12 launches on Type
Information Source:	Transport Accident Investigation Commission field investigation
Investigator in Charge:	Mr J J Goddard

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

1. NARRATIVE

1.1 During the early afternoon of 15 January 1994 the pilot arrived at the Auckland Gliding Club at Drury where he was a member. His glider was in its trailer rather than in his hangar, after an out-landing the previous weekend, so with the assistance of other club members he rigged it and prepared it for flight.

1.2 The glider was launched by aerotow at 1504 hours and was released from tow near Drury. No radio messages were heard from ZK-GLO thereafter, and no sightings by other glider pilots flying in the area were reported. As the pilot had not indicated before his departure that he had any intention of making a cross-country flight it was assumed that he would be soaring locally.

1.3 The next sighting was by the farmer and his son who witnessed the accident on their farm 12 km south of Drury. The general area comprised a small north-south valley some 600 m wide between Razorback Road to the west and Mount William to the east. Three parallel power lines, two on large towers, ran through the valley. The terrain was generally undulating fenced and hedged farmland, and rose to the west, north and east.

1.4 ZK-GLO was first seen quite low just north of their position. It then flew a few hundred metres south, after which it proceeded downwind across the valley to the east, and north, along the east side of the valley, descending towards the height of the power lines. As it approached one of the power line towers it turned away sharply to the east, then collided with the rising hill face ahead.

1.5 Emergency services were called promptly and the farmer arrived at the site within minutes but was unable to assist the severely injured pilot, who died shortly after.

1.6 The site was at 600 feet amsl on a small spur of Mount William which sloped down at 25° to the south-west. It was level with the top of a power line tower 150 m away to the west. The glider had struck the ground on a northerly heading, at an impact angle of about 60° with its nose and left wing, and had then rebounded to rest upright. The cockpit area had collapsed upwards and rearwards, making the accident unsurvivable.

1.7 The complete glider was present, and no evidence of a bird strike was found. There was no evidence of any pre-impact failure of control systems or structure. It had been rigged correctly. The flaps were set to +6°, and the airbrakes were closed and locked. The pre-impact position of the retractable wheel was not determined. The radio was "ON", tuned to 134.55. (The glider frequencies used locally were 133.55. and 134.45 Mhz). The pilot's bifocal spectacles were found nearby.

1.8 The weather at the time was fine with a moderate westerly airflow over northern North Island. The 1600 hours Auckland Metar included:

Wind:	260° magnetic, 16 knots
Visibility:	60 km
Cloud:	4 octas Cumulus at 4000 feet,
	3 octas Cirrus at 28000 feet
Temperature:	25° C, dewpoint 15° C
	QNH: 1013 hPa

1.9 Other glider pilots reported broken thermals to 3500 feet in the fresh westerly wind, with ridge lift on the western hill faces. Some turbulence was reported locally.

1.10 The general area where the accident occurred presented no suitable fields for a glider out-landing in the prevailing wind, mainly because of the undulating terrain. More favourable countryside lay 2 nm north, east and south. The operational inference of this was that a pilot needed to fly away from such an area as he lost height, so that suitable out-landing options remained available to him.

1.11 There was one field on the west side of the valley which may have appeared suitable to the pilot. The final approach to land into the westerly wind, however, would have involved flying over one set of power lines then under the next set 150m further on, and was distinctly daunting.

1.12 The witnessed flight path of ZK-GLO could have been a low circuit into this field, but with a turn away, downwind, at the final turn point when the obstruction of the first power line was realised.

1.13 The impact evidence was consistent with the glider having stalled and pitched nose down during the turn, probably from about 50 feet agl. Even if the turn had

been accomplished, no satisfactory subsequent emergency landing options were identified as available to the pilot.

1.14 The pilot had had a previous accident during his early solo flying at Drury which had some factors in common with this one. On that occasion he had returned to the aerodrome with insufficient height to complete a full circuit to land at the launch point, but had continued to attempt to do so rather than turning in early at a safe height. The glider's wing had struck a fence during the final turn, resulting in the destruction of the glider but no injuries to the pilot.

1.15 Both accidents indicated a tendency to persevere with a course of action beyond the point where it should have been abandoned. Alternatively his situational awareness, his ability to perceive the gravity of a developing situation, may have been deficient.

1.16 After the first accident the CFI and instructors of the gliding club had pursued an extended programme of dual training with the pilot to reinforce his judgement and skills in these relevant areas. This programme had been interrupted by his attendance at an Australian soaring centre where he was allowed to progress rapidly, gaining his Silver Badge before he had completed the basic requirements to qualify for his Gliding Certificate. Subsequent training to this standard was completed, but his recent purchase of his own glider had further reduced the level of supervision which the CFI was able to apply to his progress. His total of 352 launches had included 241 launches which were dual training.

1.17 The pilot had a vision defect caused by a childhood accident which rendered him effectively monocular, but allowed him peripheral vision in the injured eye. This had been the subject of a specialist assessment for CAA, when he had applied for a flight crew medical, and he had been assessed fit with a waiver for vision. No problems had been noted by his instructors as a result of this condition during his gliding training.

2. FINDINGS

2.1 The pilot was qualified to make the flight.

2.2 The glider had a valid Certificate of Airworthiness and Maintenance Release.

2.3 While being manoeuvred at a low height the glider stalled and collided with a hillside.

2.4 The pilot may have been making an approach to land in a field when he turned the glider to avoid power lines.

2.5 The field was unsuitable for an out-landing because of the power lines obstructing the approach.

2.6 The area contained no suitable fields for a glider out-landing in the prevailing conditions.

2.7 The pilot did not fly the glider clear of the area while it was high enough to reach a safe out-landing area.

29 June 1994

M F Dunphy
Chief Commissioner

ABBREVIATIONS COMMONLY USED IN TAIC REPORTS

AD	Airworthiness Directive
ADF	Automatic direction-finding equipment
agl	Above ground level
AI	Attitude indicator
AIC	Aeronautical Information Circular
AIP	Aeronatical Information Publication
amsl	Above mean sea level
ASI	Airspeed indicator
ATA	Actual time of arrival
ATC	Air Traffic Control
ATD	Actual time of departure
ATPL (A or H)	Airline Transport Pilot Licence (Aeroplane or Helicopter)
AUW	All-up weight
C	Celsius
CAA	Civil Aviation Authority
CASO	Civil Aviation Safety Order
CFI	Chief Flying Instructor
CPL (A or H)	Commercial Pilot Licence (Aeroplane or Helicopter)
DME	Distance measuring equipment
E	East
ELT	Emergency location transmitter
ERC	En route chart
ETA	Estimated time of arrival
ETD	Estimated time of departure
F	Fahrenheit
FAA	Federal Aviation Administration (United States)
FL	Flight level
g	Acceleration due to gravity
GPS	Global Positioning System
HF	High frequency
hPa	Hectopascals
IAS	Indicated airspeed
IGE	In ground effect
IFR	Instrument Flight Rules
ILS	Instrument landing system
IMC	Instrument meteorological conditions
ins Hg	Inches of mercury
kHz	Kilohertz
KIAS	Knots indicated airspeed
kt	Knot(s)
LF	Low frequency
LLZ	Localiser
M	Mach number (e.g. M1.2)
M	Magnetic

MAANZ	Microlight Aircraft Association of New Zealand
MAP	Manifold absolute pressure (measured in inches of mercury)
MAUW	Maximum all-up weight
METAR	Aviation routine weather report (in aeronautical meteorological code)
MF	Medium frequency
MHz	Megahertz
mph	Miles per hour
N	North
NDB	Non-directional radio beacon
NOTAM	Notice to Airmen
nm	Nautical mile
NZAACA	New Zealand Amateur Aircraft Constructors Association
NZGA	New Zealand Gliding Association
NZHGPA	New Zealand Hang Gliding and Paragliding Association
NZMS	New Zealand Mapping Service map series number
NZDT	New Zealand daylight time (UTC + 13 hours)
NZST	New Zealand standard time (UTC + 12 hours)
NTSB	National Transportation Safety Board (United States)
OGE	Out of ground effect
PAR	Precision approach radar
PIC	Pilot in command
PPL (A or H)	Private Pilot Licence (Aeroplane or Helicopter)
psi	Pounds per square inch
QFE	An altimeter subscale setting to obtain height above aerodrome
QNH	An altimeter subscale setting to obtain elevation above mean sea level
RNZAC	Royal New Zealand Aero Club
RNZAF	Royal New Zealand Air Force
rpm	Revolutions per minute
RTF	Radio telephone or radio telephony
S	South
SAR	Search and Rescue
SSR	Secondary surveillance radar
T	True
TACAN	Tactical Air Navigation aid
TAF	Terminal aerodrome forecast
TAS	True airspeed
UHF	Ultra high frequency
UTC	Coordinated Universal Time
VASIS	Visual approach slope indicator system
VFG	Visual Flight Guide
VFR	Visual flight rules
VHF	Very high frequency
VMC	Visual meteorological conditions
VOR	VHF omnidirectional radio range
VORTAC	VOR and TACAN combined
VTC	Visual terminal chart
W	West