Report 96-008

Piper PA28 ZK-CEQ

Ardmore Aerodrome

16 February 1996

Abstract

On Friday 16 February 1996, at approximately 0900 hours, as Piper PA28 aircraft ZK-CEQ was waiting on the tarmac at Ardmore Aerodrome for its turn at the refuelling pump, the spotter left his seat, stepped over the right wing leading edge into the rotating propeller and lost his life.

The cause of the accident was the spotter's decision to leave the aircraft while the engine was running and make his way to a helicopter at the refuelling point by the shortest route. The contributory factors were the ambient noise level generated by the rotors of the helicopter and the blending of the aircraft's propeller against the background.

No new safety issues were identified as a result of the investigation of this accident.

Transport Accident Investigation Commission

Aircraft Accident Report 96-008

Aircraft type and registration:	Piper PA28, ZK-CEQ
Number and type of engines:	One Lycoming O-3210-E2D
Date and time:	16 February 1996 at 0900 hours*
Location:	Ardmore Aerodrome Latitude: 37° 02' S Longitude: 174° 58.7' E
Type of flight:	Aerial work, traffic spotting
Persons on board:	Crew: 2 Passengers: nil
Injuries:	Crew: 1 fatal
Nature of damage:	Nil
Pilot in Command's Licence:	Commercial Pilot Licence (Aeroplane)
Pilot in Command's age:	32
Pilot in Command's total flying experience:	1715 hours (1140 on type)
Investigator in Charge:	R Chippindale

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

1. Factual Information

1.1 At 0645 hours on Friday, 16 February 1996, Piper PA 28, ZK-CEQ, departed from Ardmore to conduct a traffic patrol over the morning's peak-hour traffic, reporting details for the Police. The crew consisted of two pilots the one in the right seat being the pilot not flying (PNF) and acting as the spotter who reported his observations on the road traffic on a discrete frequency.

1.2 Two hours later the aircraft was landed and taxied to the vicinity of the refuelling pump.

1.3 A Hughes 369 helicopter was at the pumps so the pilot of ZK-CEQ had to park the aircraft nearby and wait his turn. It appeared to him that the helicopter pilot was almost ready to depart as he had seen him climb back into the aircraft. He decided to wait, parked on the tarmac some 20 to 25 m from the pumps, with the aircraft's engine idling at about 800 rpm. After waiting a "good two minutes" the two pilots of ZK-CEQ started to make light hearted conversation about the delay and the spotter suggested "I'll get out and wave him away from the pumps." The pilot told him not to worry about it.

1.4 Initially the spotter seemed to accept the suggestion to wait then, without any comment, he got out of his seat stepped around the door on his side, which is hinged at the front, and stepped off the leading edge of the wing into the rotating propeller.

1.5 As soon as the pilot realised the spotter's intention he yelled to him and at the same time pulled the mixture control and turned the ignition key to "OFF" to stop the aircraft's engine. The engine stopped immediately after the propeller struck the spotter.

1.6 The pilot ran to a nearby hangar and asked two people to ring for an ambulance, then ran back to the aircraft and rendered such first aid as was practicable to control the spotter's haemorrhage. A doctor was available on the aerodrome and both he and the rescue fire service arrived as soon as practicable after they were notified of the accident. Despite the attention of the medical services the spotter did not survive.

1.7 The spotter had been working for the company for just over a year as a pilot/spotter. He had about 500 hours total time as a pilot, 250 of which was with the company. He had been an aircraft engineer for most of his working life, working first with the RNZAF and subsequently with civil aircraft at various overseas locations.

1.8 The spotter's flying included both glider and helicopter experience in addition to powered aeroplanes. He had a current CPL(A) and an expired PPL(H).

1.9 The spotter had risen that morning at about 0600 hours which was his normal routine and appeared his normal self to the pilot, who knew him well.

1.10 The weather at the time of the accident was a light north-easterly wind with a clear sky.

1.11 It was the pilots' practice to chide each other on the infrequent occasions when they left the aircraft by stepping off the leading edge of the wing, and the hazard of so doing would have been well known to the spotter who had considerable experience of working close to rotating propellers as an aircraft engineer.

1.12 The rear faces of the two propeller blades were painted matt black.

1.13 The propeller tip protruded some 500 mm from the line of the engine cowling and the propeller arc was in the direct line from the point at which the spotter left the wing to the helicopter at the refuelling point.

2. Analysis

2.1 A replication of the event indicated that the rotating propeller would have been difficult to see when it was rotating as its matt black rear surface blended with the colour of the tarmac on which the aircraft was parked. The noise of the helicopter's rotors would also have tended to drown out the sound of the aeroplane's engine.

2.2 The accident appeared to be the result of an uncharacteristic lapse of awareness by the spotter which resulted in him going against his normal habit to take a shortcut from the cockpit to the helicopter. He was not alerted to the hazard of his action because the rotating propeller blended with its background and the sound of its operation was drowned out by the rotor noise from the adjacent helicopter.

3. Findings

3.1 The pilot was qualified for the flight.

3.2 The aircraft was airworthy.

3.3 The pilot was not aware of the spotter's intention to leave the aircraft after his suggestion to do so had been turned down.

3.4 The pilot acted promptly and correctly when he became aware of the potential for the accident.

3.5 The emergency services' response was appropriate.

3.6 The cause of the accident was the spotter's decision to leave the aircraft while the engine was running and make his way to a helicopter at the refuelling point by the shortest route.

3.7 The contributory factors were the ambient noise level generated by the rotors of the helicopter at the refuelling point and the blending of the colour of the aircraft's propeller against the tarmac background.

4. Safety Recommendations

4.1 No new safety issues were identified as a result of the investigation of this accident.

21 August 1996

M F Dunphy
Chief Commissioner

Glossary of Aviation Abbreviations

AD	Airworthiness Directive
ADF	Automatic direction-finding equipment
agl	Above ground level
AI	Attitude indicator
AIC	Aeronautical Information Circular
AIP	Aeronautical Information Publication
amsl	Above mean sea level
AOD	Aft of datum
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	Degrees Celsius
CAA	Civil Aviation Authority
CASO	Civil Aviation Safety Order
CDI	Course Deviation Indicator
CFI	Chief Flying Instructor
C of A	Certificate of Airworthiness
C of G (*or* CG)	Centre of gravity
CPL (A *or* H)	Commercial Pilot Licence (Aeroplane *or* Helicopter)
DME	Distance measuring equipment
E	East
ELT	Emergency location transmitter
ERC	Enroute chart
ETA	Estimated time of arrival
ETD	Estimated time of departure
°F	Degrees Fahrenheit
FAA	Federal Aviation Administration (United States)
FL	Flight level
ft	Foot/feet
g	Acceleration due to gravity
GPS	Global Positioning System
h	Hour
HF	High frequency
hPa	Hectopascals
hrs	Hours
HSI	Horizontal Situation Indicator
IAS	Indicated airspeed
IFR	Instrument Flight Rules
IGE	In ground effect
ILS	Instrument landing system
IMC	Instrument meteorological conditions

in	Inch(es)
ins Hg	Inches of mercury
kg	Kilogram(s)
kHz	Kilohertz
KIAS	Knots indicated airspeed
km	Kilometre(s)
kt	Knot(s)
LAME	Licenced Aircraft Maintenance Engineer
lb	Pounds
LF	Low frequency
LLZ	Localiser
Ltd	Limited
m	Metre(s)
M	Mach number (e.g. M1.2)
°M	Degrees 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
mm	Millimetre(s)
mph	Miles per hour
N	North
NDB	Non-directional radio beacon
nm	Nautical mile
NOTAM	Notice to Airmen
NTSB	National Transportation Safety Board (United States)
NZAACA	New Zealand Amateur Aircraft Constructors Association
NZDT	New Zealand daylight time (UTC + 13 hours)
NZGA	New Zealand Gliding Association
NZHGPA	New Zealand Hang Gliding and Paragliding Association
NZMS	New Zealand Mapping Service map series number
NZST	New Zealand Standard Time (UTC + 12 hours)
OGE	Out of ground effect
okta	Eighths of sky cloud cover (e.g. 4 oktas = 4/8 of cloud cover)
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	Second(s)
S	South
SAR	Search and Rescue
SSR	Secondary surveillance radar
^{o}T	Degrees True
TACAN	Tactical Air Navigation aid
TAF	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