NO. 94-009

HUGHES 369HS

ZK-HVO

ROTORUA AGRODOME

17 MARCH 1994

ABSTRACT

After boarding ZK-HVO for a scenic flight at Rotorua on 17 March 1994, one of the passengers stood up in the doorway and raised his hand to wave to other members of his tour group. His hand was struck by the helicopter's main rotor. No specific safety issues were addressed.

TRANSPORT ACCIDENT INVESTIGATION COMMISSION

AIRCRAFT ACCIDENT REPORT NO 94-009

Aircraft Type, Serial Number and Registration:	Hughes 369HS, 800245S, ZK-HVO
Number and Type of Engines:	1 Allison 250-C18
Year of Manufacture:	1970
Date and Time:	17 March 1994, 1030 hours*
Location:	Rotorua Agrodome Latitude: 38° 05' S Longitude: 176° 11' E
Type of Flight:	Air Transport— Scenic
Persons on Board:	Crew: 1 Passengers: 4
Injuries:	Crew: Nil Passengers: 1 Serious
Nature of Damage:	Nil
Pilot-in-Command's Licence:	Commercial Pilot Licence (Helicopter)
Pilot-in-Command's Age:	40
Pilot-in-Command's Total Flying Experience:	1050 hours 40 on type
Information Sources:	Accident notification form supplied by operator
Investigator in Charge:	Mr A J Buckingham

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

1. NARRATIVE

1.1 On 17 March 1994 the pilot of ZK-HVO was to fly members of an Indonesian tour party on short local scenic flights from the Rotorua Agrodome heliport.

1.2 Loading of the helicopter was accomplished by a ground attendant (himself a helicopter pilot). The intention was to fly the passengers in groups of four at a time.

1.3 The loading was carried out in accordance with the operator's established practice: two passengers were seated in the front of the helicopter, occupying the centre and right seats, then the remaining two, who had been kept clear of the helicopter while the first two were boarding, were escorted to the rear door and seated in the rear seats.

1.4 After the two front-seat passengers had boarded, the pilot would assist the centre seat occupant to fasten the seat belt and shoulder harness. The ground attendant would ensure that the rear-seat passengers were strapped in and the doors secured, before returning to the front right passenger and securing his or her harness, and the right door.

1.5 On what was to be the first flight of the day, the pilot had boarded first, and started the helicopter's engine. The two front-seat passengers were embarked by the loader, who then went to escort the other two to the rear seats.

1.6 While the loader was thus engaged, the male passenger in the front right seat decided on the spur of the moment to wave to the other members of the tour party. He placed his right foot on the boarding step on the right front undercarriage leg, stood up and raised his right hand above his head.

1.7 His raised hand was struck by the main rotor, which by this time was turning at flight idle rpm. The other passengers were offloaded immediately, and the injured man was flown direct to Rotorua Hospital, where one of his fingers had to be amputated.

1.8 The loading system in use had been the operator's standard practice for some years, and had been found to work satisfactorily. Sometimes two loading personnel were used. On occasions, language difficulties had been experienced with some tour groups, and out of some twenty members in this group, only one spoke any English and his command of the language was limited, making pre-flight briefing difficult.

2. FINDINGS

2.1 The loading of the helicopter was being accomplished in accordance with established procedures.

2.2 The spontaneous decision of one of the passengers to stand and wave to his fellow tour group members resulted in the striking of his right hand by the main rotor which was turning at flight idle rpm.

3. OBSERVATION

This accident reiterates the need for operators to monitor closely the sometimes unpredictable behaviour of persons (and not necessarily only overseas tourists) unfamiliar with helicopter operations, while in the vicinity of heliports or other locations where helicopter movements are taking place. The operator involved in this accident has investigated means of preventing a recurrence, including the modification of the pre-flight briefing.

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