



**NO. 93-010**

**AEROSPATIALE AS 350B**

**ZK-HWB**

**HARRIS MOUNTAINS, NEAR WANAKA**

**6 SEPTEMBER 1993**

### **ABSTRACT**

This report relates to the accident in which a heliskier was struck and killed by a main rotor blade of Aerospatiale AS 350B helicopter, registration ZK-HWB, on the Harris Mountains, near Wanaka on 6 September 1993. The safety issue of the more effective control of parties of skiers prior to boarding helicopters was addressed by the operator while this investigation was in progress.

# TRANSPORT ACCIDENT INVESTIGATION COMMISSION

## AIRCRAFT ACCIDENT REPORT NO 93-010

<b>Aircraft Type, Serial Number and Registration:</b>	Aerospatiale AS 350B, 1269, ZK-HWB
<b>Number and Type of Engines:</b>	One Turbomeca Arriel
<b>Year of Manufacture:</b>	1980
<b>Date and Time:</b>	1615 hours, 6 September 1993*
<b>Location:</b>	Tummel Burn, Harris Mountains, near Wanaka Latitude: 44° 32.3' S Longitude: 168° 42.7' E
<b>Type of Flight:</b>	Air Transport (Heliskiing)
<b>Persons on Board:</b>	Crew: 1
<b>Injuries:</b>	Crew: 1 Nil Passengers: 1 Fatal
<b>Nature of Damage:</b>	Substantial—one main rotor blade
<b>Pilot in Command's Licence:</b>	Commercial Pilot Licence (Helicopter) Commercial Pilot Licence (Aeroplane)
<b>Pilot in Command's Age:</b>	33
<b>Pilot in Command's Total Flying Experience:</b>	4826 hours approximately 2000 hours on type
<b>Information Source:</b>	Transport Accident Investigation Commission field investigation
<b>Investigator in Charge:</b>	Mr J J Goddard

\* All times in this report are NZST (UTC + 12 hours)

## 1. NARRATIVE

1.1 The helicopter ZK-HWB was being used on normal heliskiing operations in the Harris Mountains, north-west of Wanaka. Four groups, each comprising four client skiers and a guide, were being transported.

1.2 The operation involved flying each group to a suitable ridge or mountain top landing site in the area chosen for the day's skiing. The guide would then lead his or her group to the valley bottom, generally about 2000 feet lower, where the helicopter would pick up the group for a further run. As the objective was to ski over new untracked snow, routes varied on each run and thus resulted in different pick-up and landing sites for the helicopter.

1.3 Coordination between the guides and the helicopter pilot was accomplished by radio, with each guide selecting the pick-up site for the helicopter to land and pick up his group.

1.4 Pick-up sites were generally chosen on open, level areas of the valley, but occasionally when a group was unable to complete a run to the valley bottom a pick-up site would have to be chosen on a less suitable piece of terrain on the side of the valley, such as on the spur where this accident occurred.

1.5 The procedure followed by a group at a pick-up site was for the guide to gather all skis and his pack together to mark the site for the helicopter pilot. The pilot would aim to place the helicopter's left skid alongside the skis so that the attached ski container was conveniently adjacent. The skiers were required to kneel together by the skis so that after the helicopter landed they had minimum distance to move before boarding. They were also required to secure all loose articles such as hats and gloves.

1.6 The guide knelt one to two metres ahead of the skiers, in a position where he could monitor their behaviour and maintain eye contact with the helicopter pilot during the landing. The guide would signal the helicopter to approach and land when the group was in place and ready. The skis were loaded and unloaded only by the guide, who also opened and closed the helicopter's doors, and directed entry to and exit from the aircraft.

1.7 Disembarkation was done similarly, with the skiers being required to take only two steps from the door, then kneel together until the helicopter had departed.

1.8 The skiers in the group involved in this accident were all experienced in heliskiing operations, and had been flown directly from their Wanaka hotel to the mountain top rather than travelling by road to the forward staging area. As a result they had done more runs than other groups during the day.

1.9 During their tenth run they decided that they did not want to ski to the bottom, and requested a mid-way pick-up. The guide arranged this, selecting a site on a less steeply sloping part of a spur. The skier involved in the accident was to finish skiing for the day while the others were to have one or two more runs.

1.10 The group adopted their normal positions in preparation for the helicopter's arrival, and the guide signalled it to land. Just as it reached its landing site the main rotor downwash displaced and blew away the base-ball-type hat from the subsequent victim. He got up in spite of the guide's warning gesticulations to remain kneeling, and walked upslope, away from the left side of the helicopter. As he stood erect the tip of one main rotor blade struck his head, causing him fatal injury.

1.11 The helicopter pilot did not see the accident but felt and heard the collision. He lifted the helicopter off from the site where its left skid had been placed, and flew down to the valley floor where he shut down the helicopter. After inspecting it for damage he then lifted all the skiers from the mountain and evacuated the deceased.

1.12 Subsequent engineering inspection of the main rotor blade established that it had sustained damage which required replacement of the blade.

1.13 Examination of the accident site showed that it was a less steeply sloping section of a spur, at about 4500 feet amsl. The local slope was about 12° down to the south-west, which was beyond the slope landing capability of the helicopter. It was practicable, however, for it to be hovered with the left skid on the snow surface while passengers boarded, provided they kept close to the side of the helicopter.

1.14 Main rotor tip clearance above the surface on the uphill side was not measured, but it was estimated to be about 1.8 metres. The normal tip clearance above a level

surface was 3.1 metres, but varied dynamically with the use of the cyclic control.

1.15 Normally the helicopter safety training for skiers was provided by a preliminary briefing pamphlet and then by a daily client briefing demonstration by the guides at the forward staging area. In addition each guide continuously monitored his group's behaviour around the helicopter.

1.16 The accident group had been flown directly to the mountain top, and had thus not participated in the briefing demonstration at the staging area. Each skier had attended briefings during the previous week, however, as well as on innumerable occasions in previous years. The guide had found them to behave correctly on all the previous pick-ups until the accident occurred.

1.17 The victim had spent two weeks heliskiing each year for ten years, and had probably boarded the helicopter some 700 or 800 times while doing so.

1.18 The loading system used, of having the skiers crouched beneath the helicopter's rotor disc while it landed, had been used in heliskiing operations internationally for many years. It had the advantage of minimising the movement of skiers over variable terrain to and from the helicopter, and allowed the guide good control over them. It did have a potential hazard, however, to an individual who moved away upslope in disregard of his training.

1.19 After the accident the heliski guide company introduced a simple but formal check list procedure for its guides to perform before signalling the helicopter to approach a pick-up site. This included a check that loose items such as hats were secured.

## 2. FINDINGS

2.1 The victim walked into the rotating main rotor of the helicopter.

2.2 The victim was distracted by his hat blowing off and stood up in a danger area in spite of a warning from his guide.

2.3 The victim had been briefed about helicopter safety procedures and was very familiar with the heliskiing operation.

2.4 The helicopter landing and the skier group position were in accordance with the established operating procedures.

2.5 The landing site used was sloping and safe operations thus required more care from all personnel than on a level site.

23 March 1994

M F Dunphy  
Chief Commissioner