



**Australian Government**

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**Australian Transport Safety Bureau**

# AO-2013-136

Preliminary – 10 October 2013

## The occurrence

At about 1050 Eastern Standard Time<sup>1</sup> on 31 August 2013, the crew of a Bell 412EP helicopter, registered VH-VAS, was tasked to pick up a male patient who was reported to have fallen in the hills around Macs Cove, near Lake Eildon, Victoria (Vic.). The helicopter was contracted by Air Ambulance Victoria to provide emergency medical service (EMS) operations. The crew consisted of a pilot, aircrewman and a flight paramedic. The crew were informed that, due to the difficult terrain and the size of the patient, a winch extraction would likely be required.

The crew departed Essendon Airport, Vic. for the scene at 1105 (Figure 1). The weather was fine with light north-west winds.

**Figure 1: Accident location and flight route**



Source: Google earth

At about 1145 the helicopter arrived overhead the ground party and patient who were located in a heavily-wooded area in steep terrain about 1-1.5 km from the nearest road (Figure 2). The trees in the surrounding area were up to 60 ft high and the crew noted numerous dead branches that could create a hazard for winching operations.

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<sup>1</sup> Eastern Standard Time (EST) was Coordinated Universal Time (UTC) + 10 hours.

**Figure 2: Accident scene looking south-west**



Source: Victorian Police

The crew located a suitable area into which to winch the paramedic to assess the patient's condition. They discussed likely retrieval options and decided that a stretcher winch would be too dangerous due to the steep terrain, surrounding vegetation and the possibility of fouling. Due to the small winch area and the possible fouling hazard, the crew elected for a double-lift extraction with the patient in a rescue/retrieval strop (strop) (Figure 3).

**Figure 3: Example of a double-lift with rescue/retrieval strop**



Source: ATSB

The paramedic and aircrewman were unable to get the winch portable radio to work, so they decided that the paramedic would use hand signals to indicate whether a winch extraction would be required. The aircrewman winched the paramedic in to the site at 1203. The pilot then flew the helicopter to land at Macs Cove, about 1 NM (2 km) to the south-west, and waited about 20 minutes before returning to the scene. This allowed the paramedic time to assess the patient.

At 1224, the helicopter departed Macs Cove to return to the scene. On arrival the crew noted that some trees had been cleared to create a larger winching area and that the patient had been moved to this area. After about 5 minutes the paramedic signalled to the crew that he was ready to winch and the crew positioned the helicopter over the winching area in an approximately 80 ft hover, about 20 ft above the tree canopy.

Initially the winching procedure appeared to proceed normally. The aircrewman reported that the paramedic appeared to have his arms and legs wrapped around the patient, as is the normal procedure. When the paramedic and patient were approximately 30–40 ft above the ground, the aircrewman noticed that they had moved towards the edge of the winch area and close to the upper branches of the trees. The paramedic stated that he came in contact with the branches and had to use both hands to fend off as he came through the tree canopy. The helicopter was moved back and right about 5 ft and the winch continued.

The aircrewman reported that once the paramedic and patient were clear of the canopy, at about 15 ft below the aircraft, he noticed that the patient was moving or wriggling. The aircrewman stopped the winch for a control check, and shortly after resuming the winch noticed that the patient's arms were not in the usual position in the strop and that the paramedic appeared to be shouting at the patient. The aircrewman elected to continue winching in, and informed the pilot that the patient was slipping.

As the paramedic and patient reached the height of the helicopter's right skid-landing gear, the paramedic was facing the helicopter and the patient was facing outwards. The paramedic reported attempting to pin the patient against the skid in an attempt to stop him slipping. The aircrewman continued winching until the paramedic's head was level with the middle of the door opening. At this stage the aircrewman informed the pilot that he could see the patient slipping further. He dropped the winch pendant and reached down, grabbing the patient's shoulder in an attempt to stop his fall. The aircrewman stated that by this stage the patient appeared to be unresponsive and limp.

Despite the crew's efforts, the patient slipped out of the strop and fell to the ground, sustaining fatal injuries.

Preliminary investigations indicate that the aircraft, winch and rescue equipment were serviceable at the time of the accident, and that the crew were qualified to carry out the task.

## Further investigation

The investigation is continuing and will include examination of:

- the rescue/retrieval strop design and its potential limitations with respect to the weight and physical dimensions of a patient
- potential medical issues associated with patients being winched in rescue strops
- the operator's rescue procedures and protocols
- certification procedures for helicopter winching rescue equipment.

## Safety action

Although no organisational or systemic issues have been identified at this stage of the investigation, the following proactive safety action has been advised by Air Ambulance Victoria and the operator of the helicopter. In addition, the Australian Transport Safety Bureau (ATSB) has

released a Safety Advisory Notice (SAN) advising operators of rescue and other winch-fitted helicopters of the potential hazards associated with the use of the rescue/retrieval strop.

### ***Safety action by Air Ambulance Victoria***

Following the winching accident all winching operations were suspended involving Air Ambulance Victoria emergency medical service (EMS) helicopters. This suspension remained in place until the results of an interim investigation by the helicopter operator confirmed that an equipment fault did not contribute to the accident.

In addition, Air Ambulance Victoria has, in conjunction with its EMS contractors, commenced a separate investigation that will examine the availability of suitable alternatives to the current rescue/retrieval strop.

### ***Safety action by the operator***

Immediately after the accident the operator suspended all winching operations pending initial investigations. Following its initial investigation and associated risk assessment, winch operations were recommenced.

An interim report has been published by the operator with associated safety action. This included reinforcing the need to critically assess a patient's physical and medical state and any associated risks before committing to using the rescue/retrieval strop. An order of priority use of rescue equipment was promulgated for application in overland winch operations.

### ***ATSB Safety advisory notice AO-2013-136-SAN-004***

The ATSB advises helicopter emergency medical service and other operators carrying out winching operations to note the circumstances of this accident and consider the implications for their operations of the risk of patients or other persons being winched to slip out of a rescue/retrieval strop. In this context the size, weight and medical condition of the person(s) being winched may indicate that other recovery options offer reduced risk.

*The information contained in this web update is released in accordance with section 25 of the Transport Safety Investigation Act 2003 and is derived from the initial investigation of the occurrence. Readers are cautioned that new evidence will become available as the investigation progresses that will enhance the ATSB's understanding of the accident as outlined in this web update. As such, no analysis or findings are included in this update.*