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NOTE
This reported was completed by Air Corps personnel as an internal Air Corps investigation. It is included in the AAIU list of published Reports with the permission of the Air Corps, so as to bring the Safety Recommendations to the attention of organisations that work with the Air Corps in Search and Rescue operations and because similar hazards could also confront other Search and Rescue operators

REPORT - SAR INCIDENT WATERFORD - 10 OCT 1999

Aircraft Type & s/no:	SA316B Alouette III, s/no. 211
No. & type of engines:	One Turbomeca Artouste IIIB
Constructors number:	1983
Year of manufacture:	1973
Entry into service:	1973
DTG of incident:	10 1300 Oct 1999
Location:	Ardmore Head Co. Waterford
Task/mission:	Search & Rescue and ferry to hospital
Crew:	3
Passengers:	Nil
Injuries:	Nil
Damage:	Nil

Summary

In the course of an SAR operation to lift a casualty from sea cliffs near Waterford, a thermal blanket was lifted by the rotor downwash and became briefly entangled in the helicopters rotors, causing a temporary loss of lift, which resulted in uncontrolled loss of altitude.

1. History of the Flight

On the 10 1215 Oct the Air Corps SAR crew in Waterford were tasked by IMES with the recovery of an injured woman who had fallen down a cliff at ARDMORE HEAD. Already on scene were the RNLI Youghal, the local Coast and Cliff Rescue Service, an ambulance crew and a local doctor.

The casualty was located on a ledge at the base of a 150' high cliff with c.10 persons in attendance. She has been transferred to a spinal board and was receiving treatment. There were also some 40 - 50 spectators on the cliff-top.

The location of the casualty meant that a lift using the hoist would be required and the helicopter's approach would be through turbulent air generated by the wind - estimated at 25 knots - blowing over the cliff-top and down the cliff-face. The winchman was winched out at an altitude of 80 feet and, as the helicopter approached the overhead position, a foil (thermal) blanket, which was covering the casualty, was lifted into the air by the helicopter's downwash. The aircraft commander observed this, but owing to the critical phase of the approach with the winchman on the cable, avoiding action by manoeuvring the aircraft was not possible. He then lost sight of the blanket as it went past his three o'clock position.

A loud "bang" was then heard by the crew accompanied by severe vibration and loss of lift. The aircraft was moved away from the cliff face and the winch operator commenced winching-in the winchman. The vibrations continued - accompanied by a loud clicking noise - and application of full collective did not arrest the descent. The pilot recognised that impact with the surface of the sea was a immanent possibility and he opened the flotation gear switch-guard on the cyclic stick to prepare for ditching. The aircraft then regained power and the pilot was able to level out at 40 feet, having descended from 80 feet above sea level. At this point the winchman was still on the hoist cable some 30 feet below the aircraft. When the winchman was hoisted up to the aircraft and was brought aboard safely, the aircraft was landed and inspected. No significant damage was found.

The helicopter's SAR crew then went, on foot, to assess the casualty. The winchman abseiled down the cliff-face, and confirmed the urgency of a transfer to hospital. It was decided to re-start the helicopter and, provided that it performed satisfactorily, complete the lift of the casualty and the transfer to Hospital. Nothing unusual was observed during the start-up and short flight-check so the lift of the casualty was proceeded with and the aircraft set course for Cork Regional Hospital. The patient was handed over to hospital care at 1412h.

2. Result of Investigation

Subsequent investigation indicates that the foil blanket became enmeshed in the main rotor for a short period of time and disrupted the airflow through the rotor, thereby causing the loss of lift and vibration. It then tore away, which would account for the aircraft regaining power and being able to land. Any shreds still attached to the blades would account for the clicking noise.

3. Conclusions

This incident re-emphasises the need for:

3.1 Continuous joint training between helicopter operators and other rescue / medical agencies in the field of SAR. Ground-based personnel in these circumstances must be constantly aware of the power and consequent dangers of helicopter downwash. Lightweight items must be removed from the helicopter's working area, or if necessary, must be strongly secured. In this instance, there were some ten (10) personnel of various agencies around the casualty. This precluded the helicopter crew from seeing the casualty before the aircraft moved in to lower the winchman.

3.2 Control of the area around the casualty to be exercised by the appropriate authority, and non-essential personnel moved away. The SAR crew must be able to make a visual evaluation of the casualty and immediate area before commencing approach and hoist operations.

3.3 This incident could easily have had more serious consequences; therefore it is essential that recommendations outlined below are implemented.

4. Safety Recommendations

4.1 The Irish Marine Search and Rescue Committee (IMSARC) should review the syllabus and frequency of training of ground personnel engaged in helicopter rescue operations, such as IMES Rescue Teams, the Garda Siochana, Mountain Rescue teams etc, to ensure that such personnel are aware of the hazards posed to SAR helicopters by unsecured lightweight items. (**SR 59 of 1999**)

4.2 The Irish Marine Search and Rescue Committee (IMSARC) should review the command and control procedures at rescue sites, to ensure that non-essential personal do not impede the helicopter's operation. (**SR 60 of 1999**)