

**Aviation Safety Investigation Report
198801398**

Hughes 369D

3 October 1988

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Investigations commenced on or before 30 June 2003, including the publication of reports as a result of those investigations, are authorised by the CEO of the Bureau in accordance with Part 2A of the Air Navigation Act 1920.

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NOTE: All air safety occurrences reported to the ATSB are categorised and recorded. For a detailed explanation on Category definitions please refer to the ATSB website at www.atsb.gov.au.

This accident was not subject to an on scene investigation.

Occurrence Number: 198801398 Location: Yallourn North VIC Date: 3 October 1988 Highest Injury Level: Nil Injuries:	Occurrence Type: Accident Time: 1335
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	Fatal	Serious	Minor	None
Crew	0	0	2	2
Ground	0	0	0	-
Passenger	0	0	0	0
Total	0	0	0	2

Aircraft Details: Hughes 369D
Registration: VH-HRK
Serial Number: 480300D
Operation Type: Aerial Work
Damage Level: Substantial
Departure Point: Yallourn North VIC
Departure Time: 1330
Destination: Yallourn North VIC

Approved for Release: November 4th 1988

Circumstances:

The helicopter was lifting an industrial straddle platform from the top of a large, 300 foot high, cooling tower at an electric power station. As the helicopter took up the load, the sling-rope snagged on a small lug on the right landing gear skid. The 420 kilogram load, hanging from the right skid, caused the helicopter to bank rapidly to the right. During this rapid bank, one end of a 2 metre long plastic pipe, held by the crewman at the right rear doorway, contacted 3 of the main rotor blades. Within less than 5 seconds the rope unsnagged from the skid with a sudden jolt as the load positioned itself at the full extension of the rope beneath the cargo hook. Simultaneously the pilot regained a level attitude but found that the helicopter was already descending slowly, under control, within the approximately 30 metre wide opening of the top of the cooling tower. Because the pilot feared that the "jolt" had been possible damage sustained by the helicopter, he continued the descent gently towards the inside base of the cooling tower. A few metres above the base, the pilot jettisoned the load which subsequently damaged the inside of the tower. After jettisoning the load, the pilot landed the helicopter lightly on its skids inside the tower. The crewman got out and inspected the helicopter as best he could as the pilot kept the engine running. As no damage was seen the pilot carefully flew the helicopter out of the tower and landed nearby as the crewman proceeded out on foot. There was nowhere inside the tower for the helicopter to safely shut down. The sling rope had been lightly attached to the skid before the flight by availing of a loop in the rope and one wrap of adhesive tape. The intention of lightly attaching the rope to the skid was to avoid the possibility of the rope being accidentally caught on the rear protrusion of the skid during the lift. During the hook-up of the load, the helicopter encountered some turbulence which caused the helicopter to move forward of the desired hover position. During this forward movement, the thick rope slid aft along the right skid and a core strand of the rope snagged on a small lug which meant that the pilot could not jettison the load. At the time, the crewman was restrained at the right rear doorway. His task was to give

manoeuvring directions to the pilot and to attach a hook on the far end of the sling rope to the load with a length of plastic pipe. The 420 kilogram load hanging from the right skid placed the helicopter outside the lateral centre of gravity limits for pilot control. Just as the helicopter banked rapidly right, the straddle platform lifted clear of the tower long enough for the helicopter, with the load still dangling from the right skid, to move into the stack opening where a slow descent commenced in a slight downdraft. During the preflight planning, the pilot and the crewman did not consider it possible for the thick rope to snag on either of the 2 small lugs which are designed for the attachment of ground handling wheels. The use of the adhesive tape held the rope close enough to the top surface of the skid for the rope to come into close proximity with the lugs.

Significant Factors:

The following factors were considered relevant to the development of the accident

1. During the preflight planning, the crew misjudged the capability of the thick rope/sling to snag on the lugs for the ground handling wheels.
2. The crew lightly attached the sling rope to the right skid with adhesive tape.
3. The helicopter encountered light turbulence during the hook-up of the sling load.
4. The helicopter moved forward as the load was being taken up.
5. The sling rope slid along the skid and a portion of the rope snagged.
6. The load, dangling from the right skid, placed the helicopter well outside the lateral control centre of gravity limits for the helicopter.
7. The helicopter banked rapidly to the right while out of lateral control.
8. While the load was snagged the pilot was unable to jettison the load electrically or mechanically.
9. During the rapid bank the 2 metre plastic pipe, held by the crewman, impacted the undersurface of 3 main rotor blades.