

**Aviation Safety Investigation Report
199801024**

**Robinson Helicopter Co
R22**

21 March 1998

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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.

Occurrence Number: 199801024 **Occurrence Type:** Accident
Location: Mangalore, Aerodrome
State: VIC **Inv Category:** 4
Date: Saturday 21 March 1998
Time: 1440 hours **Time Zone** ESuT
Highest Injury Level: Minor
Injuries:

	Fatal	Serious	Minor	None	Total
Crew	0	0	1	0	1
Ground	0	0	0	0	0
Passenger	0	0	0	1	1
Total	0	0	1	1	2

Aircraft Manufacturer: Robinson Helicopter Co
Aircraft Model: R22
Aircraft Registration: VH-KKG **Serial Number:** 0903
Type of Operation: Non-commercial Pleasure/Travel
Damage to Aircraft: Destroyed
Departure Point: Mangalore Vic.
Departure Time: 1420 ESuT
Destination: Mangalore Vic.

Crew Details:

Role	Class of Licence	Hours on Type	Hours Total
Pilot-In-Command	Commercial	92.0	98

Approved for Release: Monday, July 13, 1998



The commercial pilot pre-arranged to private hire a Robinson R22 for business purposes. When he arrived at Mangalore to collect the helicopter he spoke to the duty instructor who advised him to take VH-KKG after it returned from a training flight. Minutes later a solo student pilot landed KKG well away from the AVGAS refuelling facility because the flying school forbade student pilots to hover or land near the fuel bowzers. The student then applied the control frictions and reduced power, expecting to stop the engine after its cool down period.

The commercial pilot planned to depart Mangalore with full fuel. He proceeded to the right door of KKG where he tried to explain to the student that he wanted to swap seats with him without the engine being shut down, in order to hover-taxi to the bowser for fuel. The student, a Japanese national undergoing basic flying training in Australia, did not understand the request mostly because of the over-riding engine noise and because he was wearing a headset. He remained at the controls with the engine running. As the commercial pilot intended to reposition the helicopter only a short distance before shutting down the engine to refuel, he proceeded to the left side of the helicopter and occupied the left seat where there were dual flight controls. He explained his intentions to the student who handed over the controls. The commercial pilot then checked that both his and the student's seat belts were fastened before releasing the control frictions. He then increased the engine/rotor RPM to the top of the green and raised the collective lever with the intention of stabilising in the hover momentarily before hover-taxiing to the bowser. He reported that as the helicopter became light on the skids, he applied light pressure to the anti-torque pedals and made minor cyclic control inputs as he further raised the collective. As the landing gear skids left the ground the helicopter yawed quickly to the left. He cannot recall exactly what his following control inputs were as things happened very quickly and violently. However, his impressions were of yawing quickly and an unusual attitude which he attempted to correct. Then the helicopter skids contacted the ground and it lifted back into the air momentarily before settling onto the ground and rolling onto its left side.

The weather was reported to be fine with a light and variable wind, CAVOK and temperature about 25 deg Celsius. The weather was not a factor in the accident.

No fault has been subsequently found with the helicopter which may have contributed to the accident. It had been functioning normally on its previous flight.

The student reported that he made no flight control input after handing over the controls to the private pilot. The commercial pilot recalled that the student grabbed the cyclic at the end of the accident sequence but this action did not influence the outcome of the accident.

The instructor did not give the commercial pilot approval for a engine-running seat swap with the student, nor did he authorise him to fly from the left seat. Prior to the accident, the instructor had been very busy escorting a group of cadets who had arrived at the airport earlier than expected to visit the flying school.

Except for dual check and training flights, the helicopter manufacturer requires that the R22 be flown from the right seat. There is a different visual perspective flying from the left seat versus the right seat. The R22 is also equipped with the RPM governor on the right throttle only. Normally only check and training pilots are given the additional dual instruction to enable them to fly from the left seat with another pilot occupying the right seat. Commonly, when a pilot first attempts to hover a helicopter from the opposite seat, some degree of over-controlling will occur. The commercial pilot reported that he had previously controlled an R22 in flight from the left seat with a pilot-in-command occupying the right seat, but he had never before lifted a helicopter into the hover while flying from the non command seat.

It is probable that the commercial pilot began to over-control the helicopter as it lifted into the hover. He was experienced at flying without a governor controlling RPM, so manipulating the left throttle was probably not a factor in the accident. The yaw to the left probably resulted from inadvertent excessive left pedal input because a loss of anti-torque or insufficient left pedal would have caused the helicopter to yaw to the right. Over-controlling probably developed into an irretrievable roll-over condition as the left skid dragged on the ground as the helicopter yawed left.

