



MINISTRY OF DEFENCE
MILITARY AIRCRAFT ACCIDENT SUMMARY

AIRCRAFT ACCIDENT TO
SQUIRREL HT1 ZJ258

AIRCRAFT:	Squirrel HT1 ZJ258
DATE:	14 December 2004
LOCATION:	RLG Ternhill
PARENT UNIT:	Defence Helicopter Flying School
CREW:	One - Pilot
INJURIES:	One - Minor

Issued by: Directorate of Air Staff, Main Building, Ministry of Defence, Whitehall, London SW1A 2HB



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SYNOPSIS

1. On 14 December 2004, Squirrel HT1 ZJ258 was flown to Reserve Landing Ground (RLG) Ternhill to undertake training flights. The aircraft performed a 180° lookout turn to the left followed by a turn back to the right to face into wind. After some 45° of this right turn, the helicopter was observed to enter a rapid yaw to the right, at the same time climbing to approximately 50ft whilst pitching and rolling. After several uncontrolled revolutions, ZJ258 descended and hit the runway. Despite losing his helmet, the student pilot only received minor injuries. The Board concluded the accident was caused by a loss of control of the aircraft whilst performing a lookout turn in the hover.

BACKGROUND

2. ZJ258 was flown from its home base RAF Shawbury to RLG Ternhill in order to carry out dual to solo circuit consolidation circuits as part of the student pilots training course at the Defence Helicopter Flying School (DHFS).

CIRCUMSTANCES

3. Following two circuits in which the student pilot was under the supervision of a Qualified Helicopter Instructor, ZJ258 landed to let the instructor alight and, with the student pilot now flying solo, taxied to a disused runway previously used as the departure/arrival point. The pilot carried out a 180° lookout turn to the right, followed by a turn back into wind before undertaking his first circuit. This circuit was uneventful and the student pilot returned his aircraft to the departure point. He then repeated his lookout turn of 180° to the left followed by a turn to the right, back into wind. After some 45° of the right hand turn, the student pilot stated the aircraft appeared to stop responding to the amount of right pedal he was applying. He increased the amount of right pedal applied, which initially appeared to produce no response, before the aircraft started to turn and then almost immediately began a rapid yaw to the right and a climb. The pilot then applied left pedal to arrest this turn, but this appeared to have no effect. Concerned that the aircraft was pitching and that its tail might strike the ground, the student pilot applied collective lever in an attempt to gain height. The aircraft climbed to approximately 50ft, whilst pitching and yawing at a rate of 180-360° per second. After some 5 to 7 revolutions, the student pilot, realising the aircraft was no longer under control, centred the control column and the aircraft hit the ground, having drifted downwind some 70 metres.

RESCUE/SALVAGE OPERATION

4. The pilot suffered minor injuries and was transferred by civilian ambulance to the local hospital. The pilot lost his helmet during the crash due to poor fitting. Helmets of other students on the course were also found to require re-fitting.

AIRCRAFT DAMAGE

5. The aircraft suffered Category 5 damage (beyond economic repair).

INVESTIGATION

6. The investigation concluded that ZJ258 was fully serviceable and the accident was not attributable to any significant technical failure. The Board noted that the sudden and unusual rate of rotation displayed by the aircraft would have been beyond the abilities of a relatively inexperienced pilot to deal with. The correct response in this instance would have been a progressive reduction in right pedal pressure. However, in this case, a firm right pedal was applied. Additionally, as the aircraft was turned to the right from a downwind position, the wind on the tail section would tend to produce “weathercocking” and assist in the turn.

SAFETY RECOMMENDATIONS

7. The Board recommended that:
 - a. Spot and lookout turns should be formally taught in both directions before students are cleared to do so solo and this should be recorded in their training folders.
 - b. Supervisors should be reminded of the need for correct supervision of students during early solo sorties.
 - c. The DHFS should instigate a mechanism to ensure that students are checked to ensure that incorrect mental models are not formulated.
 - d. The Central Flying School should review the wind speed limits for solo Rotary Wing student flying.
 - e. Training Group Defence Agency should review the content of disorientation training given by the RAF Centre for Aviation Medicine.

- f. Helmet fitting procedures at RAF Shawbury should be reviewed.
- g. Review of student sortie reporting to ensure consistency and adherence to syllabus guidance.