MINISTRY OF DEFENCE

MILITARY AIRCRAFT ACCIDENT SUMMARY

AIRCRAFT ACCIDENT TO ROYAL AIR FORCE HARRIER GR7 ZD434

DATE:	18 December 1998
PARENT UNIT:	RAF Wittering
LOCATION OF ACCIDENT:	Near the village of Staindrop, Co Durham
CREW	One
CASUALTIES:	One Fatal

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Synopsis

1. The pilot of Harrier GR7 ZD434 was flying as the lead of a three aircraft formation authorised to practise surface bombing attacks. The sortie progressed well until the attack on the third target. ZD434 was seen to begin the attack, pulling up and simulating release of its bombs as it entered the cloud base at about 1,850 feet above ground level. The aircraft then rolled to the right, through the inverted and pitched nose down. It exited the cloud flying nearly vertically at high speed. The pilot made an attempt to recover the aircraft, but was unsuccessful. The aircraft hit the ground and was destroyed. The pilot was killed. The inquiry concluded that the cause of the accident was that whilst in cloud the pilot manoeuvred the aircraft into a position from which there was no possible recovery.

Background

2. There had been no undue pressure on the pilot prior to the sortie and he had had adequate time to prepare. The first two simulated attacks had progressed well, and the accident occurred as the Harriers attacked their third target. The visibility in the target area was good with a cloud base of 1850 ft above ground level. The cloud base was sufficient to undertake the attack but would require both pilots to amend their "Toss bomb" profile. The formation Number 2 delayed the start of his attack thus reducing the height needed to achieve bomb release parameters. He therefore remained below the cloud.

Circumstances

3. ZD434 was on track when it was pulled up for the simulated bomb delivery, which involved flying a "Toss bomb-release" profile. On simulating release of the weapon the aircraft entered cloud and reached an angle of 45 degrees nose up. It was then rolled to 160 degrees right bank, with 3g applied. Over the next 8 seconds the aircraft rolled through the inverted to 125 degrees left bank, and pitched until it was 68 degrees nose down. At this point it exited cloud, with just 2.6 seconds remaining before impact. The pilot attempted to recover, but the aircraft hit the ground vertically.

Rescue/Salvage Operation

4. Recovery of the wreckage was hampered by bad weather and the deep, steep-sided, and unstable crater caused by the impact. It was 18 days before the Accident Data Recorder (ADR) was located. It had suffered considerable damage in the impact but was found to have retained all the relevant data. The sortie debriefing video modules were recovered, but the damage they had sustained prevented assessment of the final stages of flight.

Aircraft Damage

5. The aircraft was destroyed.

Investigation

6. The aircraft's ADR provided a full picture of events. The Inquiry found that the cause of the accident was that, whilst in cloud, the pilot manoeuvred the aircraft into a position from which there was no possible recovery.

7. The Inquiry also established that weather in the target area contributed to the circumstances, and considered that pilot distraction or disorientation may also have been factors. It noted too that the pilot had received only minimal exposure to this particular manoeuvre since his return to flying the Harrier; this was considered to be a further factor in the accident.

Safety Recommendations

8. The Board made several recommendations, which included amending current training rules, mandating the briefing of actions to be taken on entering cloud during recovery from this particular attack profile, and better protection for certain Harrier data recording modules.