



MINISTRY OF DEFENCE
MILITARY AIRCRAFT ACCIDENT SUMMARY

AIRCRAFT ACCIDENT TO ROYAL AIR FORCE HARRIER ZD377

DATE: 9 January 1997
PARENT UNIT: No IV(AC) Squadron, RAF Laarbruch
LOCATION OF ACCIDENT: RAF Laarbruch
CREW: 1
CASUALTIES: 1 Major Injuries

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SYNOPSIS

1. Shortly after Harrier ZD377 had taken off from RAF Laarbruch, and at an altitude of 50 feet, the aircraft's nose dropped and it flew into the ground. The pilot ejected but landed heavily, sustaining major injuries.
2. The Inquiry found that the aircraft's flap system had jammed at a critical stage of flight, causing an irrecoverable dive.

BACKGROUND

3. The pilot of ZD377 had recently arrived on the Squadron from the Harrier Operational Conversion Unit (OCU) at RAF Wittering. He had assisted in the planning of the sortie, which was to include a formation Short Take-Off and Landing (STOL) flap take-off and had completed both start-up and post-start checks without event.

CIRCUMSTANCES

4. As he lined his aircraft up on the runway, the pilot of ZD377 checked his flaps were operating correctly. The pilot of the other aircraft alongside ZD377 noticed nothing unusual. As ZD377 became airborne the aircraft began to drift slightly high and dropped back from the lead aircraft. To correct this, the pilot lowered the aircraft's

nose and hastened the rate at which he was altering the direction of his aft engine nozzles. The master caution and the master warning audio tones sounded and the nose of the aircraft dropped. Quickly realising that the aircraft's flaps had malfunctioned, and that recovery would be impossible, the pilot ejected.

5. The pitch of the aircraft gave the ejection seat an almost horizontal trajectory as it left the aircraft. As a result, it reached an apex of only 69 feet, leaving insufficient height for the parachute to deploy properly and the pilot made a heavy landing, breaking his right leg. His vertical velocity on landing was judged to be close to the maximum a human can sustain and survive.

RESCUE OPERATION

6. Medical assistance arrived at the scene swiftly and the pilot was airlifted to a civilian hospital.

AIRCRAFT DAMAGE

7. The aircraft was destroyed by the crash.

INVESTIGATION

8. Examination of the wreckage revealed that the flaps had been at, or very near, full deflection with the engine's nozzles at approximately 10°, a combination that would not occur with a fully serviceable flap system. An intermittent electrical fault was discovered that could have caused the flaps to malfunction, and further examination revealed that the flaps had jammed with 3° of asymmetry, which, in flight, would also have caused the flaps to malfunction. However, the Board could not establish whether this asymmetry had occurred before, or as a result of, the crash. Whichever fault had caused the malfunction, the flaps had jammed in the 'down' position and, with the aircraft's jet stream propelling against them, the aircraft had entered an irrecoverable dive and crashed.

SAFETY RECOMMENDATIONS

9. A review of the Harrier's flaps system, including operating techniques and aircrew training are being carried out. In the interim, formation STOL flap take offs are no longer authorised.