



## MINISTRY OF DEFENCE

### Military Aircraft Accident Summary of a Royal Air Force Board of Inquiry

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Aircraft:	Harrier GR7 ZD400
Date of accident:	19 May 1997
Place of accident:	RAF Wittering
Casualties:	Nil

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#### Synopsis

1. On returning to RAF Wittering following a routine training sortie, the pilot of ZD400 elected to fly a mini-circuit within the airfield perimeter. During the downwind leg the aircraft began to lose height and speed. The pilot was unable to arrest the rate of descent and ejected just prior to the aircraft striking the ground. The aircraft touched down momentarily before becoming airborne for a further  $\frac{1}{2}$ nm before hitting trees and breaking up.

#### Background

2. The sortie took place in anticipation of a forthcoming field deployment. Weather conditions meant that hover performance was only available with the engine thrust augmented by injecting water into the exhaust. The aircraft carries a limited amount of water and so this technique was to be used sparingly. Accordingly, the pilot decided that he would have to fly at a higher airspeed than he had been taught on the Operational Conversion Unit for mini-circuits in order to provide a degree of wing lift and thus offset the lack of hover performance.

## **Circumstances**

3. The pilot was aware that the entire mini-circuit would be flown in the 30-120kts speed range; a regime of flight where uncontrollable roll may occur if the aircraft is allowed to side slip. As he performed the circuit, the pilot became fixated with controlling the aircraft side slip, and did not notice the airspeed reduce. As the turn continued, he gradually applied full power but the aircraft began to descend and the speed decreased. The pilot became conscious of the aircraft's sluggish behaviour and attempted to remedy the situation by rotating the nozzles aft to increase forward speed. However, he rotated them more than intended, causing the flaps to retract slightly, further reducing wing lift. The nozzles were adjusted but the aircraft was now 15-20ft from the ground and still descending, so the pilot elected to abandon the aircraft before it struck the ground.

## **Rescue Operation**

4. The pilot was able to walk away from the crash site to be met by an RAF ambulance from RAF Wittering which took him to the Station Medical Centre.

## **Aircraft Damage**

5. The aircraft was totally destroyed in the crash.

## **Investigation**

6. The Board was able to determine that the aircraft was fully serviceable at the time of the accident and, as the aircraft was operating normally during the mini-circuit, the investigation concentrated on the human factors and supervisory aspects of the accident. The pilot was relatively inexperienced on the Harrier and by attempting the mini-circuit above dry hover weight and failing

to stabilise the aircraft at the desired speed he had created a situation that was probably beyond his capabilities. The Board determined that the cause of the accident was that the pilot did not take the appropriate action to recover the aircraft to a safe flight path.

### **Safety Recommendations**

7. The Board made several recommendations concerning the flying and teaching of mini-circuits.

### **Outcome**

8. It was subsequently decided by Higher Authority that there was no robust operational need or training requirement for the Harrier Force to fly mini-circuits, and the manoeuvre was prohibited.