MINISTRY OF DEFENCE

MILITARY AIRCRAFT ACCIDENT SUMMARY

AIRCRAFT ACCIDENT TO ROYAL AIR FORCE HARRIER GR7 ZG533

DATE:	7 July 1998
PARENT UNIT:	No 3(F) Squadron, RAF Laarbruch
LOCATION OF ACCIDENT:	RAF Laarbruch
CREW:	1
CASUALTIES:	1 Minor Injuries

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SYNOPSIS

1. As Harrier ZG533 positioned for a landing at RAF Laarbruch, it experienced a sudden and severe loss of thrust. At only 100 feet above ground level and at an airspeed of less than 160 knots, the pilot was unable to restore power and ejected. The aircraft crashed 600m short of the runway, inside the airfield boundary.

2. The Inquiry concluded that the aircraft had sustained a birdstrike which, in turn, had caused the engine to surge. At such a low altitude and slow speed, the pilot was unable to restore power.

BACKGROUND

3. The Harrier's engine is designed to cope with the ingestion of a number of small birds, although it is liable to surge if a large, Buzzard size, bird is involved. In such cases, thrust can be restored by shutting the engine down and immediately restarting it. This technique has been used successfully on several occasions, enabling aircraft to land safely. At low altitudes and slow speeds however, because of the time lapse between losing thrust and restoring it, the engine is unable to develop sufficient power quickly enough, rendering this technique ineffective.

CIRCUMSTANCES

4. The weather conditions on the day were good with good visibility, a light wind and no significant cloud. There had been no warnings of unusual bird activity around the airfield. The aircraft took off, returning to RAF Laarbruch 15 minutes later to practise circuits. During the second circuit, and as the aircraft descended through 200 feet on the final approach, the pilot saw a large bird pass down the right-hand side of the aircraft. He felt and heard a thump followed by the engine winding down. In an attempt to restore thrust, the pilot applied full power but as the aircraft continued to descend he realised he would not be able to make an emergency landing on the runway and as the aircraft descended through 100 feet, he ejected.

RESCUE/SALVAGE OPERATION

5. The ejection seat functioned correctly, and the pilot landed in open ground approximately 100 metres from the aircraft wreckage. The station's emergency services responded swiftly, and the pilot was taken by ambulance to the Station Medical Centre where, after examination, he was found to have minor injuries.

AIRCRAFT DAMAGE

6. The aircraft caught fire on impact and was destroyed. However, the engine was sufficiently intact to allow removal and examination by Rolls Royce at its Bristol site.

INVESTIGATION

7. The Inquiry's investigation was assisted by a great deal of evidence, including the aircraft's Accident Data Recorder (ADR) and Head Up Display (HUD) video, eye witness statements and the Rolls Royce technical investigation report. The Rolls Royce examination of the engine eliminated mechanical failure and foreign object damage, and found evidence in support of the pilot's statement that he had suffered a birdstrike (probably a buzzard). Furthermore, the HUD video showed a bird appear seconds before the engine wound down. The Board concluded that, whilst at low altitude and slow speed, ZG533 had sustained a birdstrike, which had caused the engine to surge and the aircraft to lose thrust and crash. At such height and speed, recovery of the aircraft was impossible.

SAFETY RECOMMENDATIONS

8. Amongst other recommendations, the Board suggested that a Bird Avoidance Team conduct a bird hazard audit of both RAF Laarbruch and nearby RAF Bruggen.