

**This Interim Report contains facts which have been determined up to the time of issue. It is published to inform the military chain of command, aviation industry and the public of the general circumstances of this serious incident and should be regarded as tentative and subject to alteration or correction if additional evidence becomes available.**

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10 Jul 14

## **INTERIM REPORT FROM THE SERVICE INQUIRY INVESTIGATING THE INCIDENT INVOLVING GAZELLE XZ936 ON 02 JUN 14**

**(All times Local)**

### **Headline**

1. While the investigation into the XZ936<sup>1</sup> incident of 02 Jun 14 is ongoing, the Service Inquiry Panel is now confident that the cause was not related to an aircraft technical issue. The Panel received a comprehensive and complete analysis of the Flight Test Instrumentation (FTI) data from QinetiQ. This data has been used to determine very accurately the sequence of events and define a provisional cause.

### **Introduction**

2. At approximately 1157hrs on 02 Jun 14, Gazelle Mk3 XZ936 was involved in an incident while carrying out Engine Off Landings<sup>2</sup> (EOLs) at Boscombe Down Airfield, Rwy 23 Grass. The rear of the tail boom detached due to impact from the Main Rotor Blades (MRB). The two crew were not injured. A team from the Military Air Accident Investigation Branch deployed to MoD Boscombe Down on 02 Jun 14 and the Director General Military Aviation Authority (DG MAA) convened a Service Inquiry on 10 Jun 14. This update presents the key facts determined up to the time of issue of this Interim Report. The Service Inquiry is ongoing and will publish its full findings in due course.



<sup>1</sup> A Gazelle HT3 owned by QinetiQ and flown by ETPS, MoD Boscombe Down.

<sup>2</sup> Engine set at Ground Idle. Engine not driving the rotor disc.

## History of the Flight

3. On 02 Jun 14, an experienced Empire Test Pilot School (ETPS) staff crew arrived at Boscombe Down for the 0900hrs Met brief. An EOL continuation training sortie was planned to include Variable Flare (VF), Low Level Variable Flare (LLVF) and Constant Attitude EOLs in order to regain and maintain currency prior to delivering ETPS EOL syllabus sorties for the students. The flight was duly authorised and all supervisory requirements were met.
4. After a normal start and departure prior to the incident, the crew correctly elected to change briefed runways due to the requirement to have 5 Kts of true headwind while conducting EOLs. A number of datum autorotations and standard VF EOLs were flown prior to the incident. The initial stages of the last two LLVF EOLs were flown to a similar profile but on the final EOL, the aircraft was slightly high at the 'check' and 'level' stages<sup>3</sup>; although sub-optimal this did not place the aircraft outwith the parameters required for a successful conclusion to the EOL. One notable distinction was that although the initial pitch attitude selected during the 'level' was the same for both EOLs, the pitch attitude increased to 7.7 degrees nose-up on touchdown for the final EOL. Following the slightly high check, the aircraft captain covered the collective to ensure it could not be raised prematurely by the handling pilot; however for the cushion onto the ground, the collective was raised to its highest position prior to touch down, leading to a lower than normal rotor speed (Nr).
5. On touchdown the aircraft 'porpoised', initially nose down, due to contact with the heels of the skids followed almost immediately by the cyclic being displaced fully aft and a progressive left (lateral) cyclic displacement. The cyclic was then centralised longitudinally as the aircraft pitched up before it was again displaced fully aft, on this occasion for a protracted period, out of phase with the oscillation in pitch attitude. The pitch oscillation continued (albeit to a lesser extent) and whilst full aft cyclic was maintained, the collective was lowered fully causing the disc attitude to be such that the MRB struck the tail. There was a subsequent violent roll of the airframe, before a full cessation of movement; this is assessed to be as a consequence of the impact forces.

## Provisional Findings

6. The Panel has found no evidence of technical failure prior to the incident and provisionally assesses that the cause of the incident was the lowering fully of the collective, with full aft cyclic applied and low Nr, which caused the disc attitude to be such that the MRB struck the tail.

## Ongoing Investigation

7. Given the weight of evidence, the Service Inquiry is confident that the cause of the event is known. Nevertheless, the inquiry continues to pursue a standard of evidence that will allow other lines of inquiry to be closed. In accordance with its terms of reference, the Service Inquiry continues to examine a number of possible contributory, aggravating and other factors in order to identify any relevant lessons that may enhance Air Safety.

## Director General Military Aviation Authority

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<sup>3</sup> An EOL consists of a flare followed by a check up on the collective, the levelling of the aircraft before finally cushioning the touch down.