MINISTRY OF DEFENCE

Military Aircraft Accident Summaries

30/90

AIRCRAFT ACCIDENT TO ROYAL AIR FORCE 9 October 1990

TORNADO GR1 ZA394 & JAGUAR GR1A XZ108

Date:	9 January 1990
Parent Airfield:	RAF Laarbruch RAF Coltishall
Place of Accident:	4 nm East of Hexham
Crew:	1 x Two 1 x one
Casualties:	2 Major

CIRCUMSTANCES

1. On 9 Jan 90 at 1449Z, Tornado GR1 ZA394 and Jaguar GR1A XZ108 collided while low flying in Northumberland. The Tornado immediately went out of control and crashed, but the crew ejected successfully. The Jaguar was recovered to RAF Leeming in Yorkshire, its pilot uninjured.

2. The Tornado crew had taken off from RAF Wattisham in Suffolk to fly a sortie before returning to their base in Germany. They planned to fly low-level to south-west Scotland before returning past Newcastle en-route to Germany. The weather was good with a scattering of clouds at about 2000 ft and generally excellent visibility of 30-40 kms. However, when looking into the low sun, the visibility was reduced by glare and haze to about 8 kms. The sortie went as planned up to the Newcastle area and once past the Newcastle Special Rules Zone (SRZ) the aircraft turned left to head 172°T for Leeming. As the aircraft approached the Hexham valley the pilot began to ease up to 500 ft and, having briefly looked to his left, he looked forward again to see a Jaguar at close range on a collision course. He did not have time to take avoiding action.

3. Jaguar XZ108 had taken off from RAF Coltishall in Norfolk as No 2 of a tactical formation on a northerly route past Newcastle to the Borders before returning to base. The sortie went as planned to Consett. Here, the No 2 aircraft overflew a navigational fixpoint on the reservoir to update his Inertial Navigation and Attack System (INAS) before turning to head 006°T. Having checked the navigational data after his fix-point, the pilot realized there was a timing error in the INAS. He corrected this error while keeping an all-round lookout. However, on completing the update he looked forward to see an aircraft passing very close down his left side.

4. The two aircraft collided with the port wing tip of the Jaguar hitting the fin of the Tornado. The Tornado pilot tried unsuccessfully to control his violently rolling aircraft and, because it was so near the ground, the crew ejected without delay. The Jaguar pilot managed to correct the undemanded roll of his aircraft and was able to land at RAF Leeming.

CAUSE

5. From the Tornado Accident Data Recorder (ADR) and statements from witnesses, it was possible to ascertain that the aircraft was fully serviceable, and to reconstruct accurately the events leading up to the accident. It was considered that the sole cause of the accident was that the crew of the Tornado and the pilot of the Jaguar were unable to see each other in time to take avoiding action. Accordingly, the factors that precluded the aircrew from seeing each other were examined very closely.

6. The weather was clear and fine, but visibility into the low winter sun was reduced by glare and haze. Furthermore, the low visual conspicuity of the aircraft when head-on and high ambient background lighting made visual acquisition difficult, even with anti-collision lights and High Intensity Strobe Lights (HISLs) on.

7. The topography of the area was investigated in great detail and it was concluded that neither aircraft was skylined to the other. Also, in the final 10 secs before the collision, both aircraft were camouflaged against dark wooded backgrounds.

8. For analysis purposes, the pilot's eye view from each cockpit was computer generated. From this it was possible to study the view shortly before the collision to see whether the aircraft could reasonably have been expected to see the other aircraft. It was concluded that both aircraft were probably obscured from the aircraft in all 3 cockpits.

9. The relative flight paths of the aircraft gave them a closing velocity of 900 kts, on a constant relative bearing. These factors not only provided a very high rate of closure but also meant that detection by the human eye was unlikely.

10. In sum, it was concluded that, on this occasion, many factors had combined to produce a situation whereby none of the crew members could have reasonably been expected to have seen the other aircraft.

SUBSEQUENT ACTIONS

11. The Tornado was destroyed on impact with the ground and, although missing 2 ft of its port wing tip, the Jaguar is being repaired from within service resources.

12. At MOD level, the UK Low Flying Management Working Group (LFKWG) continuously reviews the operating procedures that govern military low flying in this country. Following this accident, the LFMWG initiated an examination of means to reduce further the collision hazard.

13. Methods of improving aircraft conspicuity are also in hand. HISLs have already been fitted to the Jaguar force and will be fitted to the Tornado force soon. Furthermore, purpose built electronic collision warning equipment will be evaluated and developed for the RAF over the next few years.

CLAIMS

14. Claims have so far been settled to the value of £8,800, in respect of damage caused by this accident.

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