



MINISTRY OF DEFENCE

Military Aircraft Accident Summary

MILITARY AIRCRAFT ACCIDENT SUMMARY

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AIR ACCIDENT INVOLVING ROYAL AIR FORCE

TORNADO F Mk 3 ZH558

Date:	8 July 1994
Parent Airfield:	RAF Leuchars
Place of Accident:	Mediterranean Sea, 10nm SSE of RAF Akrotiri, Cyprus
Crew:	2 (pilot and navigator)
Injuries:	2 killed

CIRCUMSTANCES

1. On 8 July 1994 during Armament Practice Camp in Cyprus, the crew of ZH558 were detailed to fly the first air-to-air gunnery sortie of the day. After a two hour delay due to fog and low cloud, the aircraft took off and flew to the range. Whilst the weather was suitable for the exercise, the crew were advised that there was still some fog in the area. Once in the gunnery pattern the pilot flew a number of passes against a banner target towed by a Hawk aircraft but did not fire because of a radar unserviceability. When the next aircraft arrived, the crew of ZH558 initiated recovery to Akrotiri.

2. From the evidence derived from the Accident Data Recorder (ADR), it was determined that the recovery began from a height of 5,000ft in a gentle descent with the aircraft accelerating. During the descent, the pilot initiated a left turn towards Akrotiri and selected maximum reheat on both engines. As the aircraft passed 938ft at 519kts, the pilot rolled the wings level and the right throttle was retarded to minimum reheat. At this point the high rate of descent was reduced and, at 400ft, the aircraft recommenced a left turn. At 147ft and 590kts, with 68° of left bank, the aircraft was still 2° nose down. At the last moment, there were indications that the aircraft commenced a gentle roll out of the turn. There was no attempt to halt the rate of descent and the aircraft crashed into the sea in a shallow descent,

left wing slightly low. The crew made no attempt to eject and were killed.

CAUSE

3. An extensive salvage operation, the deepest yet undertaken of an RAF aircraft, recovered not only the ADR, but also both engine cores and several large sections of the aircraft structure. It was, therefore, possible to discount, with a high degree of confidence, a number of factors including crew incapacitation, aircraft or engine malfunction and birdstrike. The Inquiry considered a number of factors which might explain why the crew acted as if unaware of the proximity of the sea. On all the evidence available, the Inquiry concluded that the accident was caused by the failure of the crew to monitor the descent and, in turn, to prevent a situation where the aircraft could not be recovered prior to impact with the sea. The Inquiry considered that the crew exercised neither the care which is their responsibility, nor the professionalism of which they were capable. Regrettably, it was concluded that both crew members had been negligent.

4. The factors which the Inquiry considered may have led to the crew's erroneous height perception included: visual illusion, caused by a bank of sea fog in the area of the crash site; lack of warning from the radar altimeter low height audio warning system, which had been set to zero in accordance with Tornado F3 Recovery Checks; the crew's failure to carry out height checks during the descent; and their failure to adhere to their authorised Minimum Separation Distance, which was 1,500 ft.

SUBSEQUENT ACTIONS

5. Tornado Flight Reference Cards have been amended to ensure that the radio altimeter low height audio warner is set to zero only when the recovery airfield is in sight, or at radar recovery pattern height.