



MINISTRY OF DEFENCE
MILITARY AIRCRAFT ACCIDENT SUMMARY

**AIRCRAFT ACCIDENT TO ROYAL AIR FORCE TORNADO
GR1 ZD809**

AIRCRAFT:	RAF TORNADO GR1 ZD809
DATE:	14 October 1999
LOCATION:	1½nm SE of Kirkheaton, Northumbria
PARENT UNIT:	XV(R) Sqn RAF Lossiemouth
CREW:	Two - Pilot and Navigator
CASUALTIES:	Two Fatal

Issued by: Secretariat (Air Staff), Ministry of Defence, Whitehall, London SW1A 2HB

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SYNOPSIS

1. On the morning of 14 October 1999, ZD809 took off from RAF Lossiemouth as the second aircraft of a pair undertaking a Forward Air Control (FAC) exercise over Spadeadam range. As ZD809 flew along its planned low level route north of Newcastle, it encountered deteriorating weather to the North North-West of Newcastle Airport and changed track to the east to avoid the bad weather. During a second attempt to reach Spadeadam, ZD809 was again forced to pull-up from low level into cloud. This time, however, ZD809 turned south and, whilst turning hard left to avoid Newcastle Airport controlled airspace, the aircraft

overbanked and the nose dropped resulting in a steep descent. The aircraft broke cloud too late to effect recovery and crashed into open farmland killing both crew members.

2. The RAF Board of Inquiry concluded that the cause of the accident was that, during a low level abort, the aircraft was manoeuvred into a position from which recovery could not be effected in the height available.

BACKGROUND

3. Both crewmembers were students on the Qualified Weapons Instructor (QWI) course with XV(R) Sqn and, although an intensive course, this particular sortie was not unduly testing. The two aircraft flew at medium level from RAF Lossiemouth, crossed the coast north of Newcastle heading west towards the target area, descended to low level, and separated as planned. As the lead aircraft approached the high ground North North-West of Newcastle Airport, it encountered deteriorating weather. It deviated to the north of the planned route and was able to complete the exercise.

4. However, as ZD809 approached the same high terrain, it could not find a way through the weather and had to pull-up from low level. The crew followed the correct low level abort procedures and elected to return east to the coast above the appropriate safety altitude.

CIRCUMSTANCES

5. Having returned to the coast, ZD809 descended to low level and the crew tried to reach Spadeadam once more. In approximately the same position as on the first run they again encountered deteriorating weather. However, this time the aircraft turned south towards lower ground placing them on a direct heading for Newcastle Airport's controlled airspace. The crew therefore increased the aircraft's rate of turn to the left, during which manoeuvre the aircraft adopted a significant nose-down attitude. This led to the rapid descent from which recovery could not be effected in the height available. Neither crew member tried to eject, and ZD809 was destroyed.

INVESTIGATION

6. The wreckage was spread over a wide area but the Accident Data Recorder (ADR) was recovered on the first day of the investigation. This enabled the Board to discount aircraft unserviceability as a factor in the accident. The Board considered that the weather in the operating area (which possibly caused the crew to become disorientated), poor crew resource management, an incorrectly executed low level bad weather abort, and the proximity of Newcastle Airport's controlled airspace all contributed to the accident.

SAFETY RECOMMENDATIONS

7. The Board recommended a thorough review of bad weather low level abort procedures for all RAF low level operators, and that the fitting of a ground proximity warning system to all RAF aircraft should be considered.