MINISTRY OF DEFENCE

Military Aircraft Accident Summary

Aircraft:	Tornado ZA561
Date of accident:	16 August 1990
Parent Airfield:	RAF Marham
Place of accident:	10nm NE of Spurn Head
Crew:	Two
Casualties:	Two Fatal

Circumstances

1. On 16 August 1990, the crew of Tornado ZA561 flew on a night training mission to prepare for operations in the Gulf. They successfully completed an exercise in Cowden Bombing Range, east of Hull, and flew south over the sea parallel to the coast, before deciding to execute a simulated, low-level, loft bomb attack against a ship target showing on radar. The aircraft failed to recover from the attack manoeuvre and flew into the sea; neither crew member attempted to use the aircraft escape systems and both were killed.

2. Jointly the loft attack and recovery manoeuvre form a well rehearsed low-level tactic in which the aircraft, with wings level, is climbed until simulated bomb release occurs at about 1500ft. The upward travel of the aircraft is then quickly reversed by rolling to 135° of bank and pitching down into a recovery; as height reduces the bank is removed until the aircraft is once again straight and level on a near reciprocal heading at low level. The navigator's task is to monitor the manoeuvre closely and 'check heights' are exchanged by the crew until the aircraft has levelled off.

3. On this occasion steering information for the profile, normally provided in the pilot's head-up display, was not available due to the aircraft's weapon configuration and therefore, following accepted practice, a 'representative' manoeuvre was flown. At night, the loft manoeuvre is acknowledged as being very demanding, particularly when the aircraft starts from and returns to automatic terrain following (ATF) flight at low-level, as in this case. The crew must contend with and cancel the audio warnings associated with a serviceable but disengaged ATF system during the recovery and the pilot must make the necessary switch selections on the autopilot control panel to re-engage the ATF radar.

Cause

4. The entry to the loft manoeuvre contained only minor deviations from the ideal, but the recovery was mishandled; the aircraft entered a steeper than normal dive (approximately 30°) and, at impact, this had reduced only to 18°. Although not conclusive, the weight of evidence supports the view that the crew allowed themselves to become distracted and, as a result, failed to monitor closely enough their vital flight instruments.

Subsequent Actions

5. The aircraft was totally destroyed in the accident. Loft attack procedures have been reviewed, and a new standing procedure for Tornado GR1s has been issued.