MINISTRY OF DEFENCE

Military Aircraft Accident Summary

Aircraft:	Tornado GR1 ZA330
Date of accident:	12 May 1982
Parent Airfield:	RAF Cottesmore
Place of accident:	RAF Coningsby
Crew:	Two pilots
Casualties:	Nil

Circumstances

Tornado ZA330 was being flown by two experienced pilots; the front seat occupant was a student converting to type and the aircraft captain was an instructor in the rear seat. The sortie was designed to complete the front seat pilot's familiarisation with the aircraft, and to clear him to fly subsequently with a navigator. After successfully completing the first part of the sortie, the crew began a practice single-engine approach (with the left engine throttled back to idle power) to RAF Coningsby, culminating in a radar-controlled descent to the runway for a rolling touchdown and a subsequent return to base. During the final approach, both pilots checked the undercarriage position indicators and confirmed that all 3 undercarriage legs were correctly locked down. With 1½nm to go to the runway threshold, the front seat pilot lowered full flap; he then flew an accurate final approach visually and made a smooth landing. However, as he selected full power, the front seat pilot became aware that the aircraft was beginning to sink and vibrate. He raised the nose and, when the aircraft became airborne, attempted to select undercarriage up. However, the jet-pipes touched the runway before the aircraft lifted off; the aircraft then sank back on to the runway, touching down rear fuselage first. The instructor had initially attributed the

vibration to a burst tyre, but when he realised the aircraft was not going to get airborne safely, he retarded both throttles to idle. The aircraft slid along the runway on its belly, stopping some 6,000 ft beyond the threshold. The crew closed down the engines and vacated the aircraft; neither pilot was injured. A residual fire was promptly extinguished by the airfield fire section, but the aircraft was seriously damaged.

Cause

Examination of the aircraft revealed that the undercarriage selector was in the up position, that the wheels were all locked up, and the flaps were in the selected fully down position. Despite an exhaustive investigation, no technical fault could be identified; it was concluded that the undercarriage system and the cockpit indicators were fully servicable. The Accident Data Recorder (ADR) traces were correlated with the witness marks on the runway and the sequence of events was determined. The Weight-On-Wheels switch (operation of which causes the undercarriage selector lever to be physically restrained) operated on touchdown but immediately released; shortly thereafter, the undercarriage began to retract. The retraction sequence continued as the throttles were both advanced to full reheat, and the aircraft briefly became airborne before subsiding onto the runway. The most likely explanation for this sequence of events was that the undercarriage was raised inadvertently instead of the flaps.

Subsequent Actions

Following a re-assessment of the implications, the procedure whereby Tornado pilots were required to move the flaps during a roller landing has been changed. Modifications to the Weight-On-Wheels switch, to ensure that it fully meets its design functions are being considered, and an investigation into the integrity of the Tornado undercarriage system is in hand. Finally, this accident has shown that in the event of being unable to lower the undercarriage, a premeditated wheels-up landing in a Tornado is practicable. As a result, appropriate amendments to the undercarriage emergency drills have been made.