



MINISTRY OF DEFENCE

Military Aircraft Accident Summaries

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AIRCRAFT ACCIDENT INVOLVING ROYAL AIR FORCE HARRIER GR3 XV792

Date: 14 October 1980

Parent Airfield: Royal Air Force Gutersloh,
Federal Republic of Germany

Place of Accident: Royal Air Force Gutersloh

Crew: One pilot

Casualties: One killed

CIRCUMSTANCES

1. Harrier XV792 had flown a normal training sortie. On his return to the airfield, the pilot intended to land vertically on one of the landing pads designated for that purpose. Initially the deceleration to the hover appeared normal but, whilst at 100 ft AGL and still moving very slowly forward, XV792 began to roll to starboard. Although the rate of roll was slow at first, it rapidly increased. The ejection seat was seen to leave the aircraft when the latter was at 80 or 90 degrees of bank, but the height and altitude of the aircraft at ejection was outside the operating parameters of the seat and the pilot was killed. The aircraft crashed some 135 ft from the pad and was destroyed, but there was no damage to civilian property.

CAUSE

2. When in jetborne flight the Harrier is controlled by directing high pressure air ducted from the engine through nozzles at the aircraft's extremities. The flow is controlled by shutters which, in the case of roll control, are operated by a direct linkage from the associated aileron. Examination of the wreckage of XV792 revealed that a rod in the linkage from the starboard aileron to the starboard roll reaction shutter had broken due to fatigue. This failure would have caused the starboard shutter valve to open, producing an uncontrollable downforce, making the aircraft roll to starboard. Application of full opposite control would approximately balance the force from the failed valve, but would be insufficient to counter any roll velocity already achieved; thus, even with full opposite control applied, the aircraft would continue to roll at constant rate.

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SUBSEQUENT ACTIONS

3. Operating restrictions were immediately imposed and, as a result, another Harrier accident was averted just two days later when a similar failure occurred. All Harrier reaction control systems were inspected and three further cracked rods were found. Flight and ground tests were carried out using aircraft instrumented to investigate the stresses and vibrations experienced in the reaction control systems. The permitted operating life of the control rods prior to replacement has been significantly reduced to preclude the possibility of another similar failure and, as a result of the instrumented tests, an improved rod is being produced.

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