



MINISTRY OF DEFENCE

Military Aircraft Accident Summary of a Royal Air Force Board of Inquiry

Aircraft:	Hawk T1 XX164
Date of accident:	13 February 1996
Place of accident:	RAF Valley, Anglesey
Casualties:	1, fatal

Synopsis

1. On 13 February 1996, the pilot of XX164 was tasked to perform the first sortie of the day; a routine flight visually to assess the weather conditions in the local area. Immediately after taking off, however, the aircraft began to roll to the right at an ever-increasing rate, until at 150 feet above ground level and with 110° Angle of Bank (AOB), the pilot ejected. The ejection was not successful and the pilot was killed. The aircraft continued to roll to the right until it struck the ground. The Inquiry concluded that the accident occurred because the aircraft's ailerons had not been reconnected to the flying controls after a period of ground testing, and the fact that the ailerons were not functioning went undetected during after-start checks.

Background

2. The day before this sortie, XX164 had undergone ground-based non-destructive testing as part of a continuing programme to check structural components for evidence of fatigue. In preparation for this, a number of flying controls had been disconnected and other parts removed. RAF regulations state that all such work should be documented so that engineering personnel are aware of precisely what action needs to be taken to return the aircraft to its operational condition.

Circumstances

3. The pilot of XX164 started the aircraft without problem, carried out the after-start checks and taxied to the runway in time for a planned take-off at 0745. The weather at the airfield at the time was good, with scattered clouds and a light wind. Acceleration and take-off were normal, but once airborne, the aircraft began to roll to the right. Attempts to check the roll using the ailerons and rudder were unsuccessful and the roll rate increased steadily. With the aircraft at 140 feet and with 70° AOB, the pilot ejected. The seat left the aircraft at 150 feet and with the aircraft at 110° AOB in a high rate of roll. This was outside the parameters necessary for a successful ejection and, as a result, there was insufficient time for the parachute to deploy. The aircraft continued to roll to the right through the inverted and passed wings level again, before striking the ground with 20° of right bank.

Aircraft damage

4. The aircraft broke up on impact with the ground, caught fire and was destroyed. The wreckage was recovered for inspection by the Department of the Environment, Transport and the Regions Air Accidents Investigation Branch (AAIB).

Investigation

5. The Inquiry was able to draw on evidence from the Hawk's Accident Data Recorder (ADR), eyewitness statements and the AAIB's technical investigation. Eyewitness statements indicated that the pilot appeared to have no control over the aircraft's AOB. Therefore, using ADR evidence and an examination of the wreckage, the Inquiry focused initially on verifying statements provided voluntarily by three RAF airframe technicians that the aircraft's ailerons, which control AOB, had not been connected. From this, the Inquiry was able to conclude that the disconnection of the aileron control rods was responsible for the loss of control which led to the accident.

6. In considering why XX164 had been returned to service in such a condition, the Inquiry established that, in order to ease access for the non-destructive test personnel to carry out their work, both the aileron and elevator flying controls had been disconnected, the latter in order to remove XX164's nitrogen bottle. However, contrary to engineering orders, none of this was documented in XX164's maintenance work order, which forms an integral part of the aircraft log book. After the tests had been completed, the elevators were reconnected but not the ailerons. The only documentation prepared was for the removal and subsequent refitting of the nitrogen bottle, and the aircraft was declared serviceable.

7. Having accepted the aircraft, the pilot would normally carry out checks visually from the cockpit and the Inquiry considered that, had the pilot noticed that the ailerons were not functioning, he would have abandoned the sortie. Having established that the pilot would not have been able to detect from control column movements alone that the ailerons were still disconnected, the Inquiry was unable to determine why a visual check was not carried out. In summary, the Inquiry concluded that the accident resulted from the lack of proper documentation to record the removal of the aileron control rod and the consequent failure to reconnect it and to detect that the ailerons were not functioning.

Safety recommendations

8. Guidance on after start checks has been clarified such that the full and free checks of the flying controls must now be monitored by ground crews. Engineering instructions for non-destructive testing have been clarified and issued to all Hawk operators.