ROYAL AIR FORCE
AIRCRAFT ACCIDENT REPORT

Date:	10 June 1975
Aircraft:	Bulldog T1 XX 537
Crew:	Two
Sortie:	Training
Casualties:	One Major
Aircraft Damage:	Category 4
Unit:	East Lowlands Universities Air Squadron

Circumstances

1. On the afternoon of 10 June 1975, the Chief Flying Instructor of the East Lowlands Universities Air Squadron, which was on Summer Camp at RAF St Athan, authorised himself for an 'effects of controls' sortie with his student. The sortie was to be flown in Bulldog XX 537 later that afternoon. At that stage his student had flown only 4 hours 5 minutes total and only 25 minutes in a Bulldog. The CFI arranged to take the aircraft over on a running change from another QFI on the Squadron. At 1620 hours this QFI and his student landed after their sortie; the student taxied the aircraft into dispersal, applied the parking brake and left the aircraft. The CFI and his student then approached the aircraft which the student boarded, sat in his seat and started to sort out his parachute and seat harness. The 'outgoing' QFI, who had been taking fatigue-meter readings, then handed over control to the 'incoming' student and left the aircraft. As the CFI was about to step onto the wing, there was an increase in power and the aircraft moved forward. He clung onto the canopy, the aircraft started to turn to the left, and he was dragged along for some distance attempting to board the aircraft. Eventually he lost his grip and was knocked to the ground by the tailplane. The aircraft, with only the very inexperienced student on board, continued across the perimeter track and onto the grass towards the perimeter fence. As the aircraft approached the fence, the student managed to turn it to the right, but he could not prevent the port wing striking a concrete fence post. This swung the aircraft around to the left and it came to rest with its nose into the fence, the propeller and spinner demolishing a further concrete post in the process. The 'outgoing' QFI, having chased the aircraft, arrived shortly afterwards and made the aircraft safe; the student was uninjured.

Determination of Causes

2. The Board first investigated technical failure and examined all relevant aircraft technical documents to determine whether the aircraft had suffered any previous brake failures, or mechanical failures to the engine control system - no such evidence was found. Moreover, after the accident the brakes, nosewheel steering and engine controls, including the throttle, mixture control and throttle butterfly linkages and the constant speed unit were examined and found serviceable. The Board concluded that no technical failure had occurred in any system that could have caused the accident.

3. The Board then considered the Bulldog brake system. The wheel brakes are operated by the pilot applying progressive pressure to the toe brakes; the parking brake, when pulled out and locked on, produces no brake pressure but merely locks the brakes in the position selected by the toe pedals. There are no gauges in the cockpit to indicate whether the system is serviceable. The only visual indication available to the pilot as to how much brake has been applied

is provided by the position of the parking brake. The parking brake will pull out a small distance even when no pressure has been applied to the toe brakes. It was also deduced that once the parking brake is locked on, a great deal of force is required to knock it off inadvertently, making this possibility very unlikely.

4. The out-going student had, on previous occasions, failed to recognise that he had not depressed the toe brakes fully before applying the parking brake. His instructor, on this occasion, did not check that the parking brake had been applied before handing the aircraft over to the incoming student. Furthermore, when the aircraft was moved away from the fence it moved without difficulty indicating that there was little or no brake applied. The Board, therefore, concluded that the outgoing student did not depress the toe brakes fully prior to locking the parking brake.

5. When the first QFI left the aircraft the throttle was closed and the incoming student was sorting out his right-hand lap strap, which had lodged between the left-hand seat and the centre pedestal. The Board considered that he inadvertently knocked the throttle sufficiently far open to set the aircraft in motion; when he eventually did close it, it was too late to stop the aircraft striking the perimeter fence.

6. The Board concluded that the major causes of the accident were that the outgoing student failed to apply the parking brake correctly and the inexperienced incoming student inadvertently opened the throttle whilst strapping in to the aircraft.

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8. The Board made 4 recommendations:

a. Consideration should be given to providing an adequate visual means of ensuring that the brakes are fully applied.

b. An examination should be made of the use of one-piece chocks on running changes.

c. The use of a throttle lock should be introduced as a standard procedure on running changes.

d. As a safety precaution, the ignition switch should be labelled 'IGNITION'.

Comments of the Air Officer Commanding-in-Chief

9. The Air Officer Commanding-in-Chief agreed that the main cause of this accident was the failure of the outgoing student to apply the parking brake correctly, followed by the incoming student inadvertently knocking the throttle open as he was strapping in.

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12. The AOCinC considered that the provision of a visual indication of parking brake application was neither necessary nor justified on financial grounds. The AOCinC also considered the one-piece chock system suggested by the Board to be unwieldy and cumbersome, and he did not support the use of single chocks during running changes.

13. The AOCinC agreed that the friction control lever should be moved fully back (tightened) during running changes and also supported the recommendation to label the Ignition Switch.

Subsequent Action

14. The RAF College Cranwell (UAS Supplement) Air Staff Instruction, Part 2, Instruction 7 has now been amended to avoid the possibility of misinterpretation.

15. Staff action has been taken to investigate a suitable method of labelling the Ignition Switch.

16. Staff action has been taken to ensure that the Friction Control Lever is moved fully back (tightened) during running changes.

17. An examination is being carried out to determine the desirability of continuing with running changes on the Bulldog.

DFS(RAF) Cause Code

18. Main Cause Group: Aircrew Error

Ministry of Defence
7 November 1975
See Distribution List

D F M BROWNE
Air Commodore
Director of
Flight Safety (RAF)