

## **Extracts from DDAAFS Safety Magazine**

### **“SIFTING THROUGH THE EVIDENCE”**

#### **29 September 1977 (F-111C A8-133) – 2<sup>nd</sup> F-111 accident – birdstrike and ejection Evans Head**

##### **Overview**

During the downwind leg at 2000 ft AMSL for a second bombing pass on a 320° attack heading, the aircraft experienced at least three birdstrikes on the cockpit transparencies. Between 10–12 seconds later ejection was initiated at a height of 720 ft AMSL and airspeed of 520 kts. The crew module impacted the ground after a flight time of approximately three seconds. Both crew members were killed. The aircraft crashed into the ground approximately 9 nm south-southwest from the main radar target at Evans Head air weapons range (NSW) and caused an extensive ground fire. Wreckage from the windscreen panels and other cockpit contents were recovered 1.5 nm back along the flight path from the aircraft's ground impact point.

The incident crew were conducting a day single-ship sortie, which was the first flight of the operational phase of the F-111C Operational Conversion Course and was to include automatic TF flight, maritime operations and practice bombing at Evans Head air weapons range. The sortie was the student pilot's first bombing mission. The right seat was occupied by a 6SQN Training Flight Qualified Flying Instructor (QFI) pilot.

##### **Crew**

**Pilot:** CAT U<sup>1</sup> – 3341.7 hrs total time / 17 hrs F-111; (F-111 Conversion Course student)

**QFI:** A2 CAT QFI – 2483.2 hrs total time / 961.1 hrs F-111; current



**Crew module crater – aircraft A8-133**

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<sup>1</sup> Category U is used for aircrew that are uncurrent and/or under training.

## **Accident summary**

The crew had just completed the first of two level auto direct weapon delivery passes on a 320° attack heading at 1000 ft AMSL and were conducting a climbing left hand turn to the downwind leg. The last radio transmission the crew made was the intention to conduct the second attack on a 320 heading. Subsequently, the crew of a second F-111C, having just completed their bombing pass, noticed a large column of smoke south of the bombing range. The crew attempted to contact the incident crew by radio without result.

Accident reconstruction indicated that shortly after straightening for the downwind leg, the aircraft's transparencies were shattered by a collision with at least one and probably three large birds.<sup>2</sup> The pilot under instruction was most likely totally incapacitated by injuries inflicted by both bird and windshield debris.<sup>3</sup> The instructor pilot may have been similarly incapacitated, but probably to a lesser degree. However, the instructor pilot would have been effectively blinded at this stage by high energy glass fragments, bird tissue and shredded fibreglass. Between 10–12 seconds after the birdstrike, ejection was initiated, almost certainly by the instructor pilot.

Ejection occurred at 520 kts, 720 ft AMSL, nose down and right wing down. Ejection parameters were well beyond the capabilities of the crew module, which impacted the ground approximately three seconds later, nose down and with approximately 55° right bank. The module disintegrated on impact.

## **Board findings**

The Board made the following findings:

1. The primary cause of the accident was loss of control due to an extremely hostile cockpit environment resulting from a major birdstrike. There were no known contributory causes.
2. The 10–12 second period that elapsed between the birdstrike and ejection was probably the near minimum achievable when consideration is given to the likely factors of:
  - a. total surprise,<sup>4</sup>
  - b. severity of the birdstrike,
  - c. probable physical injuries,
  - d. the physical blindness and disorientation of both crew members,
  - e. the inability of the crew members to communicate, and

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<sup>2</sup> Points of impact were determined to be the left and right windscreens and left canopy.

<sup>3</sup> The left-seat occupant was likely unconscious following the initial birdstrike, having been hit on the right side of the forehead with such force that the visor cover and both visors were broken, at the same time his head was forced back with such violence that his helmet left a ¾ inch depression in the metal seat back structure.

<sup>4</sup> The crew would have been completing post weapon release checks and setting up for the next bombing pass, therefore it is unlikely that either crew were looking outside of the cockpit and saw the bird(s).

f. wind blast.

3. The type of birds that impacted the aircraft could not be determined. *(Author's note – The limited bird remains found precluded type identification but they were suspected to be pelicans as they are common to the area, and are the only large birds in the locality that are known to fly that high and in a group).*

## **Recommendations**

Board recommendations included that more emphasis should be given during F-111C crew briefing on post-birdstrike procedures, to the drastic consequences of birdstrike while the aircraft is being flown manually.<sup>5</sup> Strong consideration should be given to ejection as an immediate action, particularly if the bird impacts the left windshield.

## **Changes attributable to this accident**

Changes to F-111 procedures and aircraft modifications that were more than likely influenced by this accident are as follows:

1. Fitment of the Bird Impact Resistant Transparencies (BIRT).<sup>6</sup>
2. 82WG Standing Instructions provide advice that ejection should be considered if any doubt exists as to the controllability of the aircraft, particularly when at low altitude, following a bird strike that penetrates the F-111 windscreen(s).



**Birdstrike damage to pilot's side canopy – aircraft A8-133**

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<sup>5</sup> The Board noted that F-111C crew briefing procedures were centred on the assumption that the aircraft would be in autopilot mode at the time of a strike.

<sup>6</sup> If the birds were in fact pelican-sized, canopy penetration may still have occurred, even if BIRT were fitted.