

**Aviation Safety Investigation Report
198903755**

Cessna A188B-A1

15 March 1989

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NOTE: All air safety occurrences reported to the ATSB are categorised and recorded. For a detailed explanation on Category definitions please refer to the ATSB website at www.atsb.gov.au.

Occurrence Number: 198903755
Location: 5km South of Casino NSW
Date: 15 March 1989
Highest Injury Level: Nil
Injuries:

Occurrence Type: Accident
Time: 725

	Fatal	Serious	Minor	None
Crew	0	0	1	1
Ground	0	0	0	-
Passenger	0	0	0	0
Total	0	0	0	1

Aircraft Details: Cessna A188B-A1
Registration: VH-IQI
Serial Number: 18801348
Operation Type: Aerial Work
Damage Level: Substantial
Departure Point: Lismore NSW
Departure Time: 0710
Destination: Lismore NSW

Approved for Release: 12th December 1989

Circumstances:

During a spray run, the pilot heard a loud bang, followed by a power loss and smoke in the cabin. He elected to land the aircraft in a paddock ahead. The mainwheels struck a log during the landing role and the aircraft nosed over. Inspection revealed that the top of the number three cylinder head had separated at the second barrel attachment thread. This failure caused a drastic loss of power and allowed combustion products into the engine cowling and cabin. Specialist examination indicated that the cylinder head separated due to metal fatigue cracking. The age of the cylinder could not be established.

Significant Factors:

The following factors were considered relevant to the development of the accident

1. A fatigue initiated fracture caused the failure of the number three cylinder.
2. Forced landing on unsuitable terrain - excessively wet, soft ground.
3. Aircraft struck a hidden log during the landing roll.

Recommendaions:

Maintenance Defect Reporting (MDR) listings show 34 instances of head separation in IO-520 engines from 1980 to date. Since the age of cylinders cannot normally be established, there appears to be a need to establish a method of recording the Total Time In Service (TTIS) and Time Since Overhaul (TSO). Recording of the TTIS and TSO should ultimately establish whether these failures are age related. The recommendation is that the Civil Aviation Authority consider the need to establish a method of recording the TTIS and TSO of cylinders.