

# AIB Bulletin

# 7/85

No: 7/85

Ref: EW/G84/10/06

**Aircraft type and registration:** Morane — Saulnier MS 894A, G-AXOH (Light single-engined fixed wing aircraft)

**Year of Manufacture:** 1969

**Date and time (GMT):** 20 October 1984 at 0727 hrs

**Location:** Chervil, Nr Twyford, Berkshire

**Type of flight:** Private (business)

**Persons on board:** Crew — 1                      Passengers — None

**Injuries:** Crew — None                      Passengers — None

**Nature of damage:** Propeller, nose, and port wing damaged

**Commander's Licence:** Private Pilot's Licence with IMC rating

**Commander's Age:** 58 years

**Commander's total flying experience:** 3970 hours (of which 2100 were on type)

**Information Source:** Aircraft Accident Report Form completed by pilot and AIB examination of engine failure

Shortly after departure from White Waltham airfield en route for Birmingham, the aircraft developed an engine problem. The pilot advised the London Heathrow approach controller monitoring the SVFR (special visual flight rules) frequency of 119.9 MHz that he was returning to White Waltham due to a rough running engine. The pilot then advised that the engine was running very roughly and that he was intending to carry out a forced landing. The aircraft was landed in a small field. Towards the end of the field the undercarriage contacted some marked ruts in the surface, causing the aircraft to become airborne momentarily before striking the ground in a nose down attitude at the base of some trees. The pilot, who was wearing a full harness, escaped injury.

Subsequent AIB inspection of the engine, a Franklin 6A350C1, showed the No 5 (front/left) cylinder barrel to have

This Bulletin contains facts relating to the accidents which have been determined up to the time of issue. This information is published to inform the public and the aviation industry of the general circumstances of the accidents at the preliminary/stage and must necessarily be regarded as tentative and subject to alteration or correction if additional evidence becomes available.

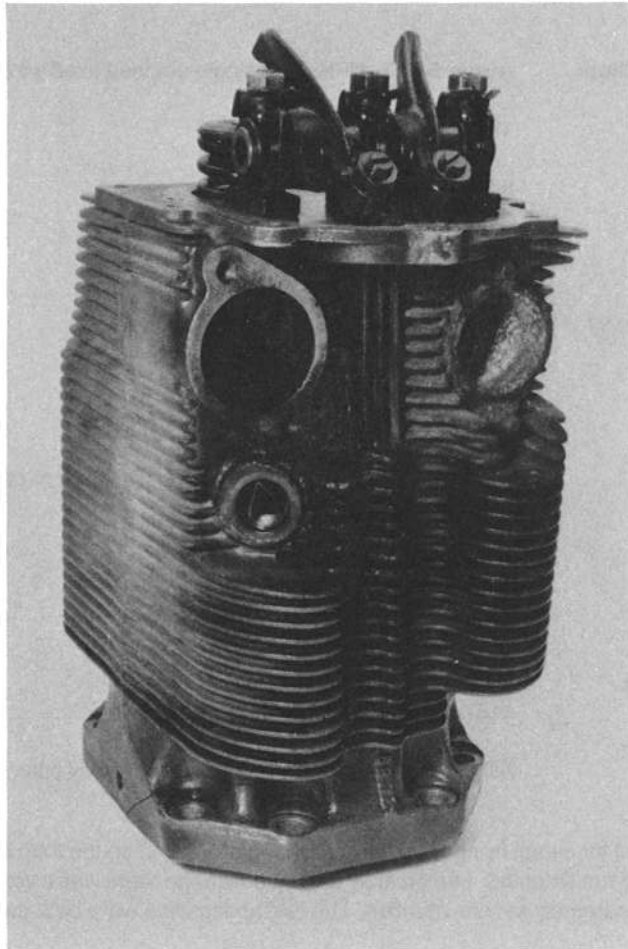
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partially separated from the crankcase due to fatigue fractures around its mounting flange on its forward side and through the crankcase around the aft/upper retaining stud. In addition the smaller diameter retaining stud adjacent to the latter had also failed due to fatigue. The barrel had in effect only been retained by two of its eight studs — ie, the aft/lower pair of studs, and showed evidence of repeated contact with the No 3 cylinder. Torque-checks carried out on the retaining nuts of the other cylinder barrels showed them to be within the specifications of 300—330 inch pounds. The cylinder head valvegear and piston were visually satisfactory.

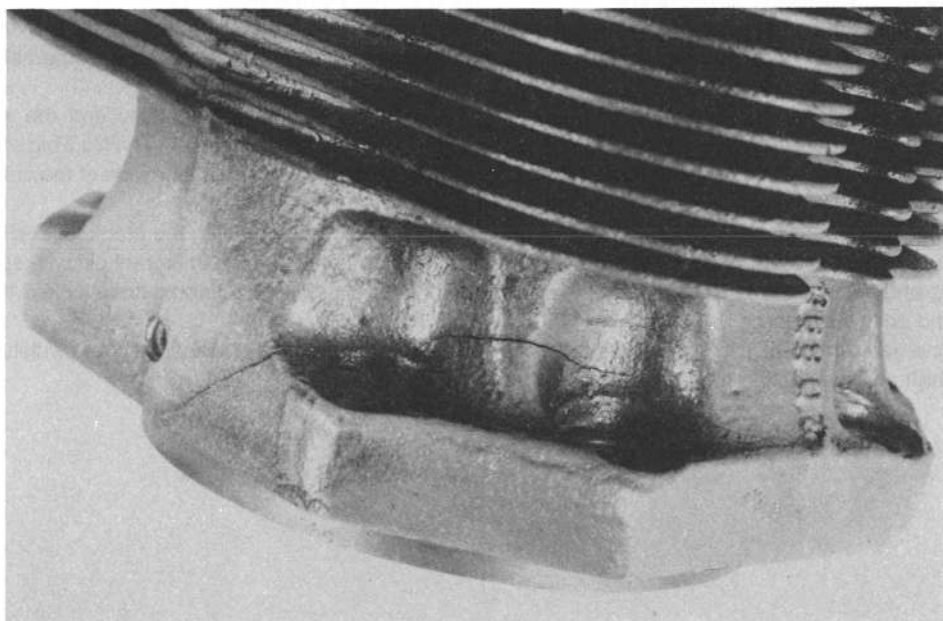
A further crack was discovered on the No 6 (front/right) cylinder barrel, within the aft/lower area of the mounting flange. Figs 1 and 2.

Metallurgical examination of the fractures on the No 5 cylinder at the Royal Aircraft Establishment, Farnborough, indicated that the fatigue had originated from some marked porosity present in the cylinder casting, between the two upper/forward retaining stud holes in the mounting flange. Fracture-separation of this area of the flange had then led to the other secondary fatigue failures on this cylinder. The crack present on the opposing No 6 cylinder mounting flange was also found to be due to fatigue.

Further stripping of the engine showed the No 5 piston crown and exhaust stub to have a notably thicker build-up of light coloured combustion product than the remainder; this could be consistent with prolonged lean-mixture detonation in this cylinder, inducing engine resonance. Unfortunately the induction system had been dismantled prior to AIB examination, although the ignition timing was reported to have been satisfactory. Camshaft/crankshaft timing was checked and found to be correct. The connecting rod bearing shells on all cylinders were satisfactory.



**Fig 1**



**Fig 2**