

ACCIDENTS INVESTIGATION BRANCH
Department of Trade and Industry

Beagle B 121 Series 1 G-AXIB
Report on the circumstances
of the accident at Blackpool Airport,
Blackpool, Lancashire on 16 May 1970

List of Civil Aircraft Accident Reports issued by AIB in 1971

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1/71	Hawker Siddeley HS 748's G-A TEK and G-A TEH at Portsmouth, August 1967	March 1971
2/71	Aeronca C100 G-A ETG at High Wycombe, April 1969	March 1971
3/71	Super Constellation BG579 and Boeing 727 SX-CBB at Heathrow, January 1970	March 1971
4/71	Boeing 720 4X-ABB and Vickers VC10 G-ASGD over Epsom, November 1969	March 1971
5/71	Beagle B121 G-AXIB at Blackpool, May 1970	March 1971

Department of Trade and Industry
Accidents Investigation Branch
Shell Mex House
Strand
London WC2
March 1971

*The Rt. Hon. John Davies, M.P.,
Secretary of State for Trade and Industry*

Sir,

I have the honour to submit the report of Mr G M Kelly an Inspector of Accidents, on the circumstances of the accident to Beagle B 121 Series 1 G—AXIB which occurred at Blackpool Airport, Blackpool, Lancashire on 16 May 1970.

I have the honour to be
Sir,
Your obedient Servant

V A M HUNT
Chief Inspector of Accidents

Accidents Investigation Branch

Civil Accident Report No EW/C/345

Aircraft: Beagle B 121 Series I G—AXIB
Engine: Rolls Royce Continental 0—200—A
Owners: Mr W S Bateson
Mr H D Conroy
Operator: Blackpool and Fylde Aero Club
Crew: Mr W S Bateson — killed
Mr C W Reid — killed
Passengers: None
Place of Accident: Blackpool Airport, Blackpool, Lancashire
Date and Time: 16 May 1970 at 2016 hrs
All times in this report are GMT

Summary

During the final stage of an approach to land, the aircraft started a climb and rolled on to its back. Then the nose dropped while the aircraft continued to roll until it flew into the ground nosedown with the wings almost level. Both occupants were killed on impact and the aircraft was destroyed by fire. It has not been possible to determine the reason for the manoeuvre that led to the accident.

1. Investigation

1.1 History of the flight

At 1930 hrs Mr Bateson booked out with air traffic control (ATC) by telephone for a 40 minute local flight on which it was intended to practise aerobatics. The aircraft was seen to start up and taxi out normally with Mr Bateson in the right hand seat and Mr Reid in the left. The take-off at 1946 hrs was uneventful and, at 2006 hrs, the pilot reported on R/T that he was over the airfield at 6,000 feet. Between 2007 hrs and 2012 hrs the Blackpool ATC frequency of 118.4 MHz was intermittently jammed by transmissions from an aircraft, subsequently identified as G–AXIB, which showed that it was carrying out aerobatics.

At 2012 hrs the pilot reported that “IB” was south of the airfield and asked whether Runway 28 was still in use. ATC confirmed this and at 2013 hrs acknowledged the pilot’s request for clearance to final approach, informing him that there was one aircraft ahead. At 2015 hrs “IB” reported “turning final” and was cleared to land after a Cessna. The surface wind was given as 315° at 10 knots. This transmission appeared to be acknowledged by a microphone being switched. There was no further R/T contact with the aircraft.

Eye witnesses on the ground observed “IB” making a rather flat, low approach to Runway 28. It then pulled up into a 20° climb and started to roll to the left, until it became inverted with the fuselage more or less parallel with the ground. From this position the nose of the aircraft was seen to fall below the horizon and a significant increase in engine noise was heard. During the pull-out manoeuvre that followed, the aircraft changed its heading by about 120° to the right before it struck the ground in a steep nosedown attitude with the wings more or less level, some 1,500 feet short of the landing threshold of Runway 28. The time was about 2016 hrs.

Both occupants were killed on impact. An intense fuel fire immediately enveloped the aircraft.

1.2 Injuries to persons

<i>Injuries</i>	<i>Crew</i>	<i>Passengers</i>	<i>Others</i>
Fatal	2	–	–
Non-fatal	–	–	–
None	–	–	–

1.3 Damage to aircraft

Destroyed.

1.4 Other damage

There was no damage to property.

1.5 Crew information

1.5.1 *The instructor*

Mr W S Bateson was the proprietor and chief flying instructor of the Blackpool and Fylde Aero Club. At the time of the accident he was 53 years old and held a valid British private pilot's licence with a full instructors rating and a night rating. He had flown a total of 7,459 hours as a pilot of which 92 hours had been on the Beagle Pup.

1.5.2 *The pupil*

Mr G W Reid aged 26 held a British private pilot's licence which was subject to certain restrictions concerned with the wearing of glasses whilst flying. His total flying experience as a pilot amounted to 80 hours of which 2 hours had been in the Beagle Pup.

1.5.3 *Post mortem examinations*

Revealed no sign of any pre-existing disease in either pilot that could have caused sudden incapacitation.

1.6 Aircraft information

G-AXIB was a standard production Beagle B 121 Series 1 (Pup 100), with the primary flight controls, ie. elevator, aileron and rudder duplicated for both pilots. A central console located between the two seats contained engine throttle and mixture controls together with the elevator trim wheel and flap selector switch. The aircraft first flew in July 1969; a certificate of airworthiness in the transport category (passenger) was valid at the time of the accident.

The records showed that it had been maintained to an approved schedule; a certificate of maintenance issued on 29 April 1970 was valid at the time of the accident.

The aircraft had flown a total of 439 hours 5 minutes since manufacture. At the time of the accident the weight was less than the maximum authorised for landing and the centre of gravity was within the prescribed limits.

The aircraft was equipped with a single radio headset with a hand held microphone fitted with a press to transmit button.

1.7 Meteorological information

At 2019 hrs, approximately 3 minutes after the accident, the following special weather observation was made at Blackpool airport:

Surface winds:	310 ⁰ at 12 knots
Visibility:	over 20 kilometres
Cloud:	nil
Present weather:	nil
QFE:	1017.3
QNH:	1018.5

Sunset was at 2008 hrs but there was an appreciable amount of daylight remaining. The weather is not considered to be a factor in this accident.

1.8 Aids to navigation

Not applicable to this accident.

1.9 Communications

Clear two-way R/T contact was established between Blackpool ATC and G-AXIB on 118.4 MHz. During an aerobatic sequence this frequency was intermittently jammed by transmissions from "IB".

1.10 Aerodrome and ground facilities

At the time of the accident, Runway 28 at Blackpool airport was 1,829 metres long and 46 metres wide. The landing threshold was 27 feet above mean sea level. (amsl). The runway and approach lights were not illuminated but the visual approach slope indicator system (VASI) was set at 3° and switched on 100 per cent intensity.

1.11 Flight recorder

No flight recorder was required and none was fitted.

1.12 Wreckage

Inspection of the accident site showed that the aircraft had been turning slightly to the right when it struck the ground in a nosedown attitude of more than 50° below the horizontal. It had then bounced forward and had come to rest some 48 feet further on. A large part of the fuselage and cockpit had been destroyed by fire. Examination of the wreckage after it had been removed from the accident site revealed that the aircraft had been complete when it struck the ground, that the wing flaps had been fully retracted and the engine had been operating under some degree of power.

There was no evidence of fire in the air. Detailed examination of the aircraft structure and control system revealed no evidence of pre-crash failure or malfunction.

1.13 Fire

A severe fire developed immediately after the ground impact when the fuel tanks burst. The airfield fire service arrived promptly at the accident site and the fire was quickly extinguished with foam.

1.14 Survival aspects

This was not a survivable accident.

2. Analysis and Conclusions

2.1 Analysis

A detailed examination of the badly burned wreckage revealed no evidence of any defect or malfunction of the aircraft. No evidence came to light that either pilot was incapacitated. The cause of the manoeuvre that terminated in the accident is therefore a matter for speculation.

Unusual attitudes can result from a number of circumstances. If the pilot attempted to stretch the glide on an approach that was undershooting or if he unsuccessfully attempted a missed approach procedure, a stall could have been induced. Beagle Pup aircraft are normally quite docile in the stall but if the flaps were up, or retracted prematurely at the initiation of a missed approach the aircraft could take up an unusual attitude. But such an attitude would be unlikely to be described as a roll.

G-AXIB's flaps were found to be retracted, a setting that is not normally associated with an aircraft about to make a landing. There was, however, no evidence, nor was there any reason to suppose, that a flapless landing was intended or that either pilot felt the need to initiate a missed approach. The approach appears to have been rather low, but not irrecoverably so, and there was no obstruction on the runway. In any case the 20° climb described by witnesses seems far too steep for the initiation of a missed approach.

It is possible that the manoeuvre was an intentional but unsuccessful roll. Although the practice is against the rules it is not unheard of for an aerobatic flight to terminate in a roll during the approach. The roll itself, carried out at an appropriate height, is not dangerous; the danger lies in the absence of any margin of height to recoup even a minor mistake. It could be argued that what the eyewitnesses described was a roll during which the nose of the aircraft was not raised high enough in the early stages of the manoeuvre. There is, however, no other evidence that a roll had been attempted, and this hypothesis cannot be established as the cause of the accident.

2.2 Conclusions

(a) Findings

- (i) The aircraft had a valid certificate of airworthiness and had been maintained to an approved schedule.
- (ii) There was no evidence of failure of the aircraft, its engine or equipment or of any incapacity of either pilot.
- (iii) The weights and centre of gravity were within the prescribed limits.
- (iv) The instructor pilot was correctly licensed and sufficiently experienced to carry out the flight.

- (v) The aircraft rolled and became inverted during the final stage of an approach to land, attaining an attitude from which there was insufficient height for recovery to be made.
- (vi) The evidence was insufficient to establish the reason for the roll.

(b) *Cause*

The accident was the result of the aircraft rolling on to its back during an approach to land and attaining an attitude from which there was insufficient height for recovery to be made.

G M Kelly
Inspector of Accidents

Accidents Investigation Branch
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