

Aircraft type and registration: Bölkow Monson B209 G-AZVC
Piper Arrow PA28R G-AYYN (both light single engined fixed wing aircraft)

Year of Manufacture: G-AZVC 1972
G-AYYN 1971

Date and time (GMT): 19 August 1984 at 1234 hrs

Location: Cobham, Kent

Type of flight: Air Race

Persons on board: Crew — 1 in each aircraft Passengers — None

Injuries: Crew — 1 fatal in each aircraft Passengers — None

Nature of damage: Aircraft both destroyed

Commander's Licence: Both Private Pilot's Licences

Commander's Age: G-AZVC 51 years
G-AYYN 63 years

Commander's total flying experience: G-AZVC 2531 hours
G-AYYN 1036 hours

Information Source: AIB Field Investigation

History of the flight

The two aircraft concerned in the accident were taking part in the Kent Messenger Air Race from Rochester Airport. The race was organised by the Royal Aero Club, and 24 competitors took part in the event which consisted of six laps of a circuit marked by beacons. A handicap was applied by delaying the start of the faster competitors by a pre-computed time so that the first aircraft across the finishing line would be the winner. Of the two aircraft concerned in the accident the Monson took off first at race time 17 min 23 secs, and the Arrow at time 19 min 29 secs. The normal rules of the air applied, except that dispensation was given by the CAA in respect of overtaking, which could take place on either side rather than on the right.

At the end of the fifth lap the Arrow was 9 seconds behind the Monson, and had been lapping on average 23 seconds faster than the Monson. The two aircraft collided near the second beacon at the northern end of the course. After the collision the Arrow crashed into the village of Cobham. The Monson crashed to the south of Cobham after striking a power line. There was no fire in either case.

On site information

The Arrow had totally disintegrated in the ground impact. It had descended in a flight path of about 45° and had struck the ground three-quarters inverted. The initial point of impact was a light contact on the chimney stack of a bungalow. The starboard wing was removed on striking the bungalow's garden wall and the aircraft disintegrated on ground impact in the car park. It traversed the car park and the main street before coming to rest in the garden of the house opposite. Fuel from the starboard wing was evident in the garden of the bungalow, having withered a large patch of grass. The port wing tank on examination showed evidence of the hydraulic effects of fuel contents. Damage to the propeller showed evidence of high rotational energy.

The Monson wreckage was found in a compact site in a wheatfield one kilometre south of the Arrow. The wings had detached and it could be seen that the aircraft had collided with some power cables before striking the ground. The wings had failed in upward bending at their centre attachment point. They had either separated or partially separated from the aircraft before ground impact, and their failure and detachment is attributed to the collision with the power cables which struck their undersides. The fuselage damage was consistent with hitting the ground nose down and at a low forward speed. The propeller had much leading edge and chordwise damage, indicating high rotational energy at the time of the collision with the Arrow.

An extensive search was made of a field and an area of woodland to the north of Cobham, which was underneath the point of collision, and many pieces of wreckage were found. Two large pieces of canopy frame from the Monson were discovered, together with related pieces of perspex. Pieces which were identified as coming from the Arrow comprised fragments of cabin floor, a right hand rudder pedal and side skin from the right hand forward fuselage.

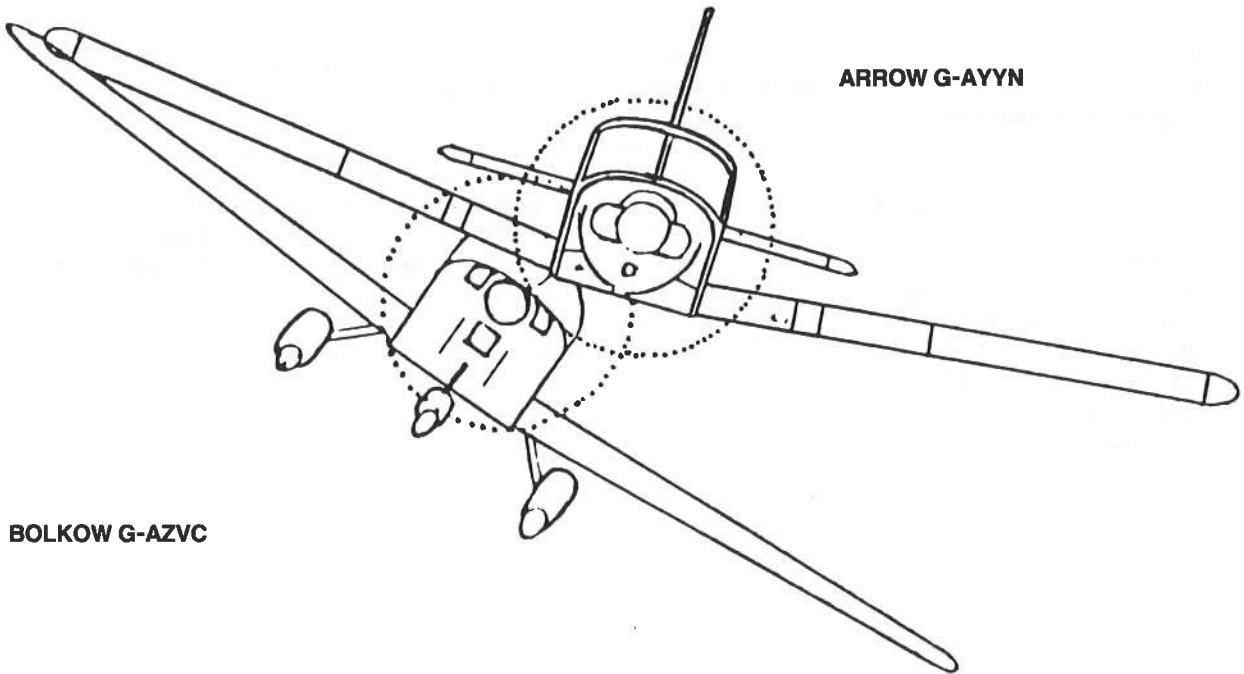
This wreckage showed evidence of propeller damage. Other items were recovered that had obviously come from inside the cockpit of each aeroplane. The canopy damage on the Monson opened a large aperture through which such items could escape, and it is probable that the Arrow's door opened following the collision.

Engineering examination

The two aircraft were removed to the AIB facility at Farnborough where a detailed engineering investigation took place. As far as can be determined, at the time of collision, both aircraft were structurally intact and all aerodynamic and control surfaces were complete and functional. There was evidence of power on both engines. The collision took place principally between the canopy and propeller of the Monson and the underside of the Arrow. The propeller of the Monson penetrated the cabin floor of the Arrow, suffering severe damage itself and severing rudder, aileron and elevator control cables. The Monson's canopy was shattered in the collision. Black smearmarks on the canopy were identified with contacts on the retracted starboard mainwheel of the Arrow. There was a light contact between the starboard wing tips of both aeroplanes. From the witness marks found on both aircraft it was possible to adduce the approximate relative positions of each aircraft as illustrated in the diagram.

Medical evidence

There was no pathological or medical evidence to suggest that either pilot's ability to fly his aircraft had been impaired before the collision.



ARROW G-AYYN

BOLKOW G-AZVC

**APPROXIMATE RELATIONSHIP OF THE ARROW AND THE BOLKOW
AT THE POINT OF COLLISION**