

No: 11/89

Ref: EW/C1126

Category: 1c

Aircraft Type and Registration: (1) Stolp Starduster Too SA300, G-DUST
(2) Luscombe Silvaire, G-AKTM

No & Type of Engines: (1) 1 Lycoming 0-360-AIA piston engine.
(2) 1 Continental A65-8 piston engine.

Year of Manufacture: (1) 1983
(2) 1948

Date and Time (UTC): 16 July 1989 at 1053 hrs

Location: Badminton, near Bristol, Avon

Type of Flight: Private (pleasure)

Persons on Board: Crew - (1) 1 Passengers - (1) 1
(2) 1 (2) 1

Injuries: Crew - (1) 1 (serious) Passengers - (1) 1 (minor)
(2) None (2) None

Nature of Damage: Substantial to both aircraft

Commander's Licence: (1) Private Pilot's Licence
(2) Private Pilot's Licence

Commander's Age: (1) 45 years
(2) 41 years

Commander's Total Flying Experience: (1) 400 hours (of which 100 hours were on type)
(2) 568 hours (of which 170 hours were on type)

Information Source: AAIB Field Investigation

The aircraft were flying in for the annual Badminton Air Day but, because of poor weather earlier that morning, a number of aircraft had delayed their departure to Badminton. At the time of the accident the circuit was extremely busy with a mixture of non-radio and radio equipped aircraft converging on the airfield. The weather at the time of the accident was given as wind 030°/08 kt, visibility 5 km, cloud an estimated 5 oktas at 1,200 feet agl. The grass runway 07 was in use with a published Landing Distance Available of 800 metres. There is however a further extension to this runway of 450 metres to the west which may be used by light aircraft. The control tower, taxiway and parking area are in line with, and to the south of the published 07 threshold. An aerodrome chart for Badminton is reproduced courtesy of Pooley's Flight Guide.

As a result of discussions between the CAA and the aerodrome operator, an Aerodrome Traffic Zone was promulgated by NOTAM for the Air Day with a fully licensed Air Traffic Control Service. The

Badminton air/ground frequency of 130.425 MHz was changed to 123.175 MHz on 16 July 1989, the day of the accident.

The pilot of the Luscombe G-AKTM had departed from White Waltham and on arrival he joined the Badminton circuit downwind, left hand for runway 07. He was aware of the contents of Notam A438/89 detailing the ATC and frequency changes and the correct RTF frequency was selected on his hand held 720 channel transceiver. The pilot called downwind but he had to extend the downwind leg because of conflicting traffic. The RTF transcript indicates that there were at least 9 aircraft in the circuit at that time. On turning base leg he radioed that he was following a Rapide and he extended the base leg so that his aircraft was to the right of the runway centre line. Just before commencing a turn to intercept the final approach path he saw the Starduster G-DUST becoming established on the centre line ahead of him. The Starduster landed on the 07 extension and slowed to taxiing speed abeam the control tower. It was seen by witnesses to swing slightly left before turning right towards the taxiway leading to the parking area.

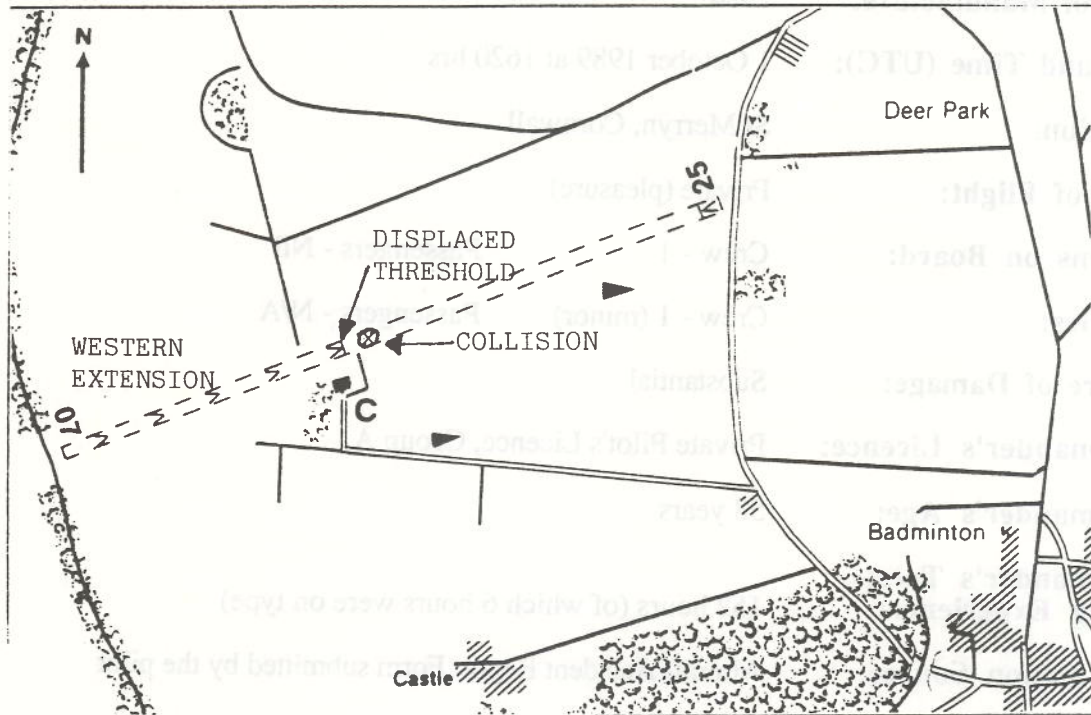
The pilot of the Luscombe stated that he saw the Starduster landing on the runway extension and, as it was his original intention to land at the published 07 threshold, he carried out an S turn and sideslipped in order to land on the extension, and so provide sufficient separation. When he saw the movement of the Starduster towards the left of the runway, he assumed it was clearing to the left and continued with his approach and landing. A PPL holder passenger in the Luscombe, stated that their aircraft touched down approximately a half to two thirds along the extension, and he too assumed that the Starduster was clearing to the left. Due to sloping ground north of runway 07 it is not possible to clear the runway in this direction. The pilot of the Luscombe was anticipating leaving the Starduster on his left hand side. When the Starduster turned to the right across his path neither he nor his passenger could recall any evasive action being taken, although against the background noise of a nearby generator, witness and video evidence indicates that power may have been applied to G-TM just before impact. The collision occurred at an estimated 40-50 mph with the Starduster pointing diagonally to the right across the runway, and with the Luscombe maintaining runway heading. The Luscombe struck the Starduster on its right hand side just behind the wing root.

The Starduster suffered very substantial damage and the pilot in the rear seat was seriously injured. He was wearing a protective helmet and this was examined at the RAF Institute of Aviation Medicine who have concluded that the helmet probably minimised the pilot's injury. When interviewed at a later date, the Starduster pilot could remember little of the flight. The front seat passenger was concussed and received relatively minor injuries. The Luscombe also suffered substantial damage, but the occupants were uninjured.

The aerodrome and local emergency services were very quickly on the scene, and although there was no fire, a foam carpet was laid underneath the wreckage.

When full Air Traffic Control is in force, a tape recorder capable of recording RTF communications must be operating during the promulgated period of positive control. A tape recorder was provided by the aerodrome operator, but the tape was found to have jammed in the head of the recorder. After

examination at the AAIB the tape was found to have been the subject of a number of re-recordings such that the reproductive quality was very poor. No RTF communications between the Starduster and ATC were identified on the tape, and upon examination of the wreckage of the aircraft an incorrect frequency (123.775 MHz) was found to have been selected on the aircraft's radio.



The pilot had received approximately two hours of instruction during the afternoon covering various ground control exercises and low and high pass up to 150 feet. He was briefed by the CFI for a final exercise consisting of a circuit of the airfield at 400 feet.

The autogyro was climbed at 30 kt to 200 feet when a reduction in power was noticed; a return to the airfield was attempted but on turning downwind the engine began to splutter and the rpm dropped to about 1700. The pilot decided that a forced landing was inevitable and selected a site in a field. The engine was still turning at low rpm and was left on for its residual thrust. At approximately 20 feet the engine suddenly produced full power for 2 seconds taking the autogyro to the edge of the field. A vertical landing was attempted in order to avoid the bushy hedge and the autogyro sustained a heavy impact with the ground.

The pilot sustained his chest injuries as a result of the harness when the mast failed and suspected that parachute icing may have been the cause of the engine failure.

Weather conditions were:

83%	Relative Humidity
13°C	Temperature
3 octs at 1000 feet	Cloud
6 km	Visibility