

**Aviation Safety Investigation Report
199702226**

**Austflight U.L.A. Pty Ltd
Drifter**

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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.

An examination of the accident site disclosed that the aircraft had struck the ground at moderate speed and in a steep nose-down attitude. It then came to rest inverted. Pieces of fabric and components from the left wing were found up to 300 m from the impact area. The fabric from the top surfaces of both wings was extensively ripped during the accident sequence, and was found to be weak and easily torn by hand. The edges of some tears on the left wing were found to be frayed more extensively than other tears. The pieces of fabric found downwind from the accident site showed evidence of oil spray staining and had been creased prior to release from the aircraft.

The outer half of one propeller blade was found about 70 m from the impact area, adjacent to ribs from the top outboard surface of the left wing. One other propeller blade was very loose in the hub, and the reduction gearbox had broken, allowing the propeller to become separated from the engine.

Assessment of the accident area led to the development of the following probable sequence of events: An initial failure of the left wing upper surface fabric occurred in the panel between two ribs immediately inboard of the outboard wire attachment points. The cause of this initial failure was not determined, however the possible reasons were considered to be: birdstrike, pre-existing damage to the fabric in that area, or overstressing of the fabric during the flight manoeuvres conducted earlier in the flight.

After the fabric began to tear the loose material was blown rearwards in the airflow and became wedged around the rear wire attachment point and the wing structure, leading to creasing of the material. The hole in the top of the wing would have allowed additional airflow, and air pressure, into the wing, inducing extra drag in the wing and causing the wing to flex rearwards. The wire running between the rear inboard attachment point and the rear fuselage became slack and entered the propeller arc. One blade of the propeller struck the wire and was almost torn from the propeller hub, while the second blade struck the wire and became entrapped by the wire. The blade broke and was flung forward, with the wire, into the aileron and the rear spar of the wing. Fabric and metal components of the aileron were severed by the wire and propeller, and the aileron and rear wing spars were dented by the propeller. Parts of the torn fabric slightly outboard of this area were also severed.

Around this time, the air pressure inside the left wing overcame the strength of the fabric near the outboard end and the fabric along the trailing edge tore apart. This allowed the three outboard wing ribs on the top surface of the wing to be released from their mounting sleeves and fall to the ground. The loss of wing shape and the hole in the upper surface would have made the aircraft uncontrollable. Since this sequence was likely to have occurred at the start of the spiral dive, the high right wing position reported by a witness is likely to have been induced by the loss of lift from the left wing and the subsequent roll to the left.

The pilot had purchased the aircraft about 15 months earlier, around the time he had obtained some flying training. Having achieved his first solo flight, after about 7 hours of flying training, the pilot never continued with his training. The pilot held only a student certificate, and was not permitted to fly an aircraft without being supervised by an instructor. As he held no drivers licence, the pilot used the aircraft as a means of transport and used it to travel to and from work each day, as well as for recreational travel. He apparently flew the aircraft on almost a daily basis. No record of his total flying experience was obtained as he did not maintain any form of log book.

Although the fuselage was equipped with two seats and had a serial number of 25-0220 attached, the aircraft was not an aircraft certified in accordance with CAO 95-25. It was effectively a CAO 95-10 aircraft on a two seat fuselage. The Australian Ultralight Federation (AUF) records indicated that the aircraft had been rebuilt in the past, following an accident. Since the aircraft had apparently not been altered since the pilot had purchased it, and the aircraft had flown successfully for that time, its construction was considered not relevant to this accident. The AUF was informed about the construction of the aircraft. No aircraft log book or maintenance records were received with the aircraft when it was purchased by the pilot.

The fabric used on the aircraft is susceptible to damage by sunlight. A regular coating with a protective liquid is necessary to protect the material from ultraviolet radiation. There was no evidence of such a coating on this aircraft. The aircraft was kept in the open and was not hangared. Under such conditions, the expected life of the fabric is around 14 months. The wing fabric was not new when the pilot purchased the aircraft, and it had not been replaced since then. Some weeks prior to the accident the pilot had taxied the aircraft into a stay wire associated with a power pole near his residence. This had evidently caused a dent in the leading edge of the left wing. He had then made enquiries about replacement of the spar and the wing fabric, but had not taken the matter further at the time of the accident. Some plastic tape had been affixed to the leading edge of the left wing about 500 mm in from the outboard end. Whether that was the damaged area could not be determined.

SIGNIFICANT FACTORS

1. The pilot had not received adequate training in aircraft operation.
2. The wing fabric was severely weakened by exposure to sunlight.
3. The pilot had been conducting manoeuvres which placed high accelerations on the airframe.
4. The fabric on the left wing failed, leading to loss of control of the aircraft.

SAFETY ACTION

The Australian Ultralight Federation has taken action to inform student pilots who own aircraft of their responsibilities and certificate limitations. It has also taken action to ensure that instructors test their students on the limitations of the student certificate.
