

**Aviation Safety Investigation Report
199701890**

**Bill (Willy) Andiel
Little Tinny**

09 June 1997

Readers are advised that the Australian Transport Safety Bureau investigates for the sole purpose of enhancing transport safety. Consequently, Bureau reports are confined to matters of safety significance and may be misleading if used for any other purposes.

Investigations commenced on or before 30 June 2003, including the publication of reports as a result of those investigations, are authorised by the Executive Director of the Bureau in accordance with Part 2A of the Air Navigation Act 1920.

Investigations commenced after 1 July 2003, including the publication of reports as a result of those investigations, are authorised by the Executive Director of the Bureau in accordance with the Transport Safety Investigation Act 2003 (TSI Act). Reports released under the TSI Act are not admissible as evidence in any civil or criminal proceedings.

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.

Occurrence Number: 199701890 **Occurrence Type:** Accident
Location: 2km W Armidale, Aerodrome
State: NSW **Inv Category:** 4
Date: Monday 09 June 1997
Time: 1500 hours **Time Zone** EST
Highest Injury Level: Fatal
Injuries:

	Fatal	Serious	Minor	None	Total
Crew	1	0	0	0	1
Ground	0	0	0	0	0
Passenger	0	0	0	0	0
Total	1	0	0	0	1

Aircraft Manufacturer: Bill (Willy) Andiel
Aircraft Model: Little Tinny
Aircraft Registration: 10-1797 **Serial Number:** 10-1797
Type of Operation: Non-commercial Pleasure/Travel
Damage to Aircraft: Destroyed
Departure Point: Armidale NSW
Departure Time: 1200 EST
Destination: Armidale NSW

Crew Details:

Role	Class of Licence	Hours on Type	Hours Total
Pilot-In-Command	Ultralight Pilot	1.0	70

Approved for Release: Friday, February 27, 1998

Circumstances

The aircraft was amateur built, of all metal construction, and fitted with mechanically-operated two stage trailing-edge wing flaps which were selected by moving a lever in the cockpit to a detent corresponding the first or second stage position as appropriate. The wings folded to allow the aircraft to be easily transportable. As far as could be determined, the accident flight was the first flight by the pilot in command in the aircraft type and the first occasion he had flown an aircraft fitted with wing flaps.

The pilot in command purchased the aircraft from the owner/builder several weeks prior to the accident. In the intervening period the owner/builder demonstrated to the pilot in command how to prepare the aircraft for flight. The owner/builder stated that he held lengthy discussions with the pilot in command regarding the best technique for flying the aircraft, including the use of flaps. He had also provided the pilot in command with several pages of written instruction on aircraft operation. He stressed that it was not necessary to use the flaps during normal aircraft operations and discouraged their use until the pilot in command was familiar with the handling characteristics of the aircraft.

On the day before the accident, the pilot in command conducted taxiing exercises in the aircraft. On the day of the accident he indicated to a pilot at the aerodrome that he intended to conduct more taxiing exercises and might then fly the aircraft. This pilot, who had previously flown with the pilot in command in a Skyfox aircraft, told him that the aircraft he had purchased would have less inertia than the Skyfox. The local pilot was also aware that the pilot in command had no experience in flying an aircraft fitted with wing flaps and told him that extension of the flaps during flight would require a nose-down pitch change of the aircraft to maintain speed. Later, witnesses observed the pilot in command conducting taxiing practice in the aircraft for about 45 minutes.

There were no witnesses to the takeoff, which occurred at about 1200 EST. At about 1250, a witness saw the aircraft about 3 km west of the aerodrome flying in a westerly direction at about 300 m above ground level. He saw it turn 90 degrees left and then turn left again through about 90 degrees. He then looked away momentarily. When he saw the aircraft again, it was in a steep spiral descent, which continued until it disappeared from his view. The wreckage of the aircraft was later found some 3 km west of the aerodrome.

It could not be determined what flight manoeuvres the pilot in command had conducted during the initial segment of the accident flight, or whether he operated the wing flaps and familiarised himself with the behaviour of the aircraft in this configuration.

Examination of the wreckage showed that the aircraft had been in an inverted, steep nose-down attitude at impact. The engine was developing power at impact. The control column was found 11.5 m away from the main wreckage. The first stage of flap was selected. All other controls were checked and no abnormality found.

Examination of the detached section of the control column revealed that it was manufactured from aluminium tubing with an outside diameter of approximately 25 mm and a wall thickness of 2 mm. The column failed in overload from bending forces. The point of failure was a circumferential weld. The weld was of poor quality which significantly reduced the ultimate strength of the column. It could not be established whether the failure occurred in flight or at ground impact.

At the time of the accident, the local weather was fine, with a light wind.

Analysis

The spiral descent of the aircraft described by the witness, and the impact attitude, indicate that the aircraft was in uncontrolled flight at that time. The spiral descent was typical of aircraft behaviour following a wing stall. If the wing flaps were selected before the loss of control occurred, which is likely given their position at impact, their effect on the flight characteristics of the aircraft may have increased the severity of the stall and made recovery to normal flight more difficult. In such circumstances, the pilot in command's low overall flying experience, and his lack of experience on this particular aircraft, may have limited his ability to both recognise the onset of the stall and effect a recovery to normal flight.

The mode of failure of the control column indicated that the failure was unlikely to have occurred during normal controlled flight. This leads to the deduction that the failure did not contribute to the loss of control of the aircraft. It further indicates that the failure probably occurred either during the spiral descent, as the pilot attempted to recover the aircraft to normal flight, or at ground impact. In any event, it is probable that the accident outcome would not have changed.

Safety action

Following the accident, the Australian Ultralight Federation undertook the following safety action:

1. Published in the November 1997 issue of the Australian Ultralights magazine an article describing the failure of the control column and discussing aircraft welded structures and components. The article strongly advised against the use of welded aluminium in any load bearing area of the aircraft.
2. Australian Ultralights magazine also published a brief summary of the accident in which the article noted that the pilot had not undertaken dual training in an aircraft fitted with flaps before the accident. It strongly emphasised the need to complete such training.