Aviation Safety Investigation Report 198903856

Modified Benson Autogyro

30 April 1989

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 CEO 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 CEO 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: 198903856 **Occurrence Type:** Accident
Location: Watts Bridge (76 km NW Brisbane) QLD
Date: 30 April 1989 **Time:** 830
Highest Injury Level: Fatal
Injuries:

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

Aircraft Details: Modified Benson Autogyro
Registration: N/A
Serial Number: N/A
Operation Type: Sport Aviation
Damage Level: Destroyed
Departure Point: Watts Bridge QLD
Departure Time: N/K
Destination: Watts Bridge QLD

Approved for Release: 4th July 1989

Circumstances:

The pilot had arrived at the strip the previous day to continue learning to fly the gyrocopter. He flew one circuit during which the craft was observed to porpoise a number of times. After landing, the pilot complained to his adviser that there was something wrong with the aircraft. The adviser then flew the craft and reported that it behaved perfectly. He counselled the pilot that he was overcontrolling in the pitching plane and suggested flying low runs along the strip as practice to overcome the problem. The pilot did this a number of times and showed good pitch control. On the morning of the accident, the pilot flew some further strip runs, again showing good control. He then began flying circuits at about 50 feet above ground level. On the third circuit, as the gyrocopter was turning base with about thirty degrees bank applied, the following sequence occurred in rapid succession - nose pitch-up 15`, nose pitch-down 20`, nose pitch-up 40`, nose pitch-down 50`. The gyrocopter remained in this latter attitude until ground impact. Although the pilot had owned the gyrocopter for some six months, he had flown it only once previously. This was some six weeks before the accident when other instances of pitch control difficulties occurred. There was no evidence of any fault with the gyrocopter. The engine sounded normal up to the time of impact and the shattered propeller blade was evidence of the engine being under power at impact. The gently undulating terrain over which the craft was seen to fly might have given the pilot the illusion that he was descending as he flew the base turn. The porpoising of the gyrocopter as described by witnesses was indicative of the pilot overcontrolling in the pitching plane. When the craft pitched nose down the second time, the airflow through the rotor disk would have been reversed from the normal upwards flow to a downwards flow. Once this condition arises, recovery to normal flight is impossible. It was noted during the investigation that there was no part of the gyrocopter in the pilot's normal forward field of view which could assist him in judging the in-flight attitude of the craft. Such information is particularly important for control in the pitching plane, especially during the learning phase.

Significant Factors:

The following factors were considered relevant to the development of the accident

1. The pilot's level of flying experience was very low.

2. The pilot encountered unforeseen circumstances beyond his capability.

3. There was no part of the gyrocopter forward of the pilot to assist his perception, during flight, of aircraft attitude.

Reccomendations:

A simple but effective means of providing the pilot with accurate aircraft attitude information would involve the attachment of a "T" (or similar) shaped frame of light steel rod or similar construction to the forward section of the craft so that the cross bar at the top of the "T" was approximately level with the pilot's eyes and rigged parallel to the lateral axis of the craft. It is recommended that this proposal be put to the Sports Rotorcraft Association of Australia. The proposal might also have merit in ultralight applications where the pilot is seated forward of the main aircraft structure.