Aviation Safety Investigation Report 198901577

Air Command Commander

6 May 1989

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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.

Occurrence Number: 198901577 **Occurrence Type:** Accident
Location: 7km S of Ballan VIC
Date: 6 May 1989 **Time:** 1040
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: Air Command Commander
Registration: VG-384
Serial Number: N/A
Operation Type: Sport Aviation
Damage Level: Substantial
Departure Point: 7km S of Ballan VIC
Departure Time: 1030
Destination: 7km S of Ballan VIC

Approved for Release: 28th June 1990

Circumstances:

The pilot had held a Private Pilot Licence for several years, for conventional aircraft only. He bought the gyroplane as a kit and assembled it late in 1988. His brother later bought a similar kit and this was mostly assembled by the pilot. In the period 31 January-2 February the pilot received 3.5 hours of dual instruction in a two seat version of the type. The flights consisted of takeoffs and flights along the strip. No circuits were carried out. The instructor assessed that the pilot was tending to overcontrol the aircraft, and recommended additional training. There was no evidence to indicate that the pilot carried out any further flying. On the day of the accident the pilot carried out a series of taxy runs and short hops along the strip. Following these he flew about six separate circuits, climbing to about 100 - 120 feet, landing and taxiing back to the start point on each occasion. The pilot's brother's machine had never been flown and the pilot suggested that he fly it for him. Two take off runs with brief lift off and landings were made. The pilot then flew several circuits and landings. Late on downwind on the final circuit the aircraft started to porpoise, with increasing amplitude. On about the fourth of these the nose went down and the aircraft subsequently struck the ground in an inverted attitude. Inspection of the wreckage did not reveal any signs of pre-existing defects. For operation of these machines it is necessary to ensure that they are flown under a positive gravitationl loading. If this is not done the aircraft quickly becomes uncontrollable and may turn upside down. The porpoising manoeuvres seen just before the accident are known to lead to a negative gravitational loading situation if not quickly corrected. Advice provided to the investigation was that the appropriate control action was to reduce engine power to idle and hold the control stick central. In his limited training the pilot had not progressed to the stage of having the recovery technique demonstrated to him. It is possible that with his low experience level he may not have appreciated the dangers of the porpoising situation. While the machine in the accident and the one owned by the pilot were similar, there were some differences. The pilot's own machine was fitted with fairings, a

windshield and a horizontal stabiliser. Persons experienced in the operation of gyroplanes consider that with a horizontal stabiliser the machines are more stable and less susceptible to porpoising and negative gravity situations.

Significant Factors:

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

1. Pilot did not obtain sufficient training on gyroplane operations.

2. Aircraft had different design and therefore, different flight characteristics to model previously flown.

3. Probable onset of porpoising, precise reasons undetermined.

4. Pilot unable to regain control possibly due to lack of knowledge and/or experience.