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COMMONWEALTH OF AUSTRALIA DEPARTMENT OF TRANSPORT

# AIRCRAFT ACCIDENT INVESTIGATION SUMMARY REPORT

Reference No.

SI/761/1023

Publication of this report is authorized by the Secretary under the provisions of Air Navigation Regulations 283 (1)

## 1. LOCATION OF OCCURRENCE

26 km east-south-east of Cloncurry, Queensland	Height a.m.s.l. 630 feet	Date 11.6.76	Time (Local) 1310 hours	Zone EST
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## 2. THE AIRCRAFT

Make and Model Cessna 210L	Registration VH-DJT	Certificate of Airworthiness Valid from 9.4.76
Certificate of Registration issued to Hanlon Homes Pty. Ltd. 178 Zillmere Road. Zillmere, Queensland	Operator N. F. Kaddatz 25 Moonga Crescent, Margate, Queensland	Degree of damage to aircraft Destroyed
		Other property damaged Nil
Defects discovered  Nil		

## 3. THE FLIGHT

Last or intended departure point Redcliffe	Time of departure 0810 hours	Next point of intended landing Cloncurry	Purpose of flight Travel	Class of operation Private
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## 4. THE CREW

Name	Status	Age	Class of licence	Hours on type	Total hours	Degree of injury
Neil Francis KADDATZ	Pilot	31	Private	35	716	Fatal

## 5. OTHER PERSONS (All passengers and persons injured on ground)

Name	Status	Degree of injury	Name	Status	Degree of injury
Deborah Kathleen BERTHELSEN	Passenger	Fatal	William Henry REVIS	Passenger	Fatal
Lucinda-Lee Kathleen BERTHELSEN	Passenger	Fatal	Reginald MARTIN	Passenger	Fatal

## 6. RELEVANT EVENTS

The pilot telephoned Archerfield Briefing Office at 0620 hours and notified flight plan details for a direct flight from Redcliffe to Cloncurry operating in accordance with the Visual Flight Rules. His flight plan indicated an expected departure time of 0730 hours, cruising altitude 8500 feet, a flight time of 289 minutes and a fuel endurance of 396 minutes. The meteorological forecasts which he obtained indicated that fine conditions would prevail over the proposed route. Prior to departure the pilot refuelled the aircraft, probably to capacity. He then supervised the loading of the aircraft and, at departure, the gross weight of the aircraft was about the maximum permissible.

When taxiing prior to take-off the pilot established radio communication with the appropriate ground station and, at 0809 hours, reported being airborne. He subsequently made routine position reports as the flight progressed and there was nothing in those reports to suggest that the aircraft was operating other than normally. The ground speed achieved by the aircraft was slightly slower than provided for by the flight plan. At 1255 hours the pilot communicated with Mt. Isa Flight Service Unit and reported 'we're one zero miles north-west McKinlay and leaving eight five zero zero on descent Cloncurry'. This report was acknowledged by Mt. Isa. No further communications were received from the aircraft.

The aircraft was later observed approaching, from the direction of McKinlay, a road construction camp on the McKinlay to Cloncurry road at an estimated height of about 1500 feet. The speed of the aircraft at this time was estimated to be at least the normal cruising speed. It was in a normal attitude and the engine noise appeared normal. Suddenly a series of loud sounds, similar to those produced by a misfiring engine, was heard and an object was seen to separate from the aircraft. The aircraft, which had commenced a turn to the right, then entered a steep spiral dive during which white fuel vapour was seen to issue from one of the wings. The spiral dive continued until the aircraft struck the ground at high speed in a steep nose down attitude some 1280 metres north of the construction camp.

Examination of the aircraft wreckage was hampered by the gross degree of disintegration. No evidence was found of any pre-existing defect or malfunction which may have contributed to the accident. There was no fire. A two metre outboard portion of the left wing was located 710 metres south-west of the main wreckage and a smaller portion of that wing was located 61 metres west of the larger portion. It was established that the left

6. Relevant Events

wing failed in flight in a manner consistent with the application of a nose down torsional loading to the wing.

The operating limitations section of the flight manual for VH-DJT specified a manoeuvring speed of 118 knots I.A.S. (Indicated airspeed). The manual defines the term 'manoeuvring speed' as 'maximum for manoeuvres involving an approach to stall conditions or full application of the primary flight controls'. The normal cruising speed of the Cessna 210L type is considerably in excess of the manoeuvring speed. A rapid application of a large amount of right wing down aileron control at speeds in the vicinity of the normal cruising speed could produce torsional loading in the left wing in excess of the design strength of the wing and result in wing failure consistent with that which occurred in this accident.

The en route weather encountered by the aircraft was consistent with the forecast obtained by the pilot and conditions at the time of the accident were fine and cloudless. There is nothing to suggest that the aircraft encountered abnormal turbulence at any time during the flight. There is no evidence to indicate that the pilot suffered any incapacitation which would have affected his ability to control the aircraft. The area in the vicinity of the road construction camp was the habitat of numerous kite-hawks but there was no evidence of the aircraft colliding with birds or of the pilot needing to take any action to avoid them.

7. OPINION AS TO CAUSE

The cause of the accident was the failure in flight of the left wing as a result of torsional loading in excess of the design limits. The torsional overloading was the result of rapid application of a large amount of right wing down aileron control when the aircraft was flying at a speed considerably greater than the specified manoeuvring speed. The circumstances which led to the rapid application of aileron control have not been determined.

Approved for  
publication

*G. V. Hughes*

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Delegate of the Secretary

Date  
1.12.78