



COMMONWEALTH OF AUSTRALIA

DEPARTMENT OF TRANSPORT

Reference No.

AIRCRAFT ACCIDENT INVESTIGATION SUMMARY REPORT

SI/794/1028

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

1. LOCATION OF OCCURRENCE

115 km west of Katherine, Northern Territory

Height a.m.s.l.

400 feet

Date

6.10.79

Time (Local)

Not known

Zone

CST

2. THE AIRCRAFT

Make and Model	Registration	Certificate of Airworthiness
Hiller UH-12E Helicopter	VH-CCV	Valid from 19.9.78
Certificate of Registration issued to	Operator	Degree of damage to aircraft
		Substantial
		Other property damaged
		Nil
Defects discovered		
Main drive torsion coupling inoperative.		

3. THE FLIGHT

Last or intended departure point	Time of departure	Next point of intended landing	Purpose of flight	Class of operation
Base Camp	0847 hours	Probably "Dorisvale"	Geological Survey	Aerial Work

THE CREW

Name	Status	Age	Class of licence	Hours on type	Total hours	Degree of injury
	Pilot	26	Commercial Helicopter	324	1200	Fatal

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

Name	Status	Degree of injury	Name	Status	Degree of injury
	Passenger	Fatal		Passenger	Serious

6. RELEVANT EVENTS

The helicopter had been based at a remote camp 25 km north-west of "Dorisvale" for several weeks and was engaged on a geological survey in that area. During the survey flights it was occupied by a pilot and two geologists and landings were made from time to time to enable the geologists to collect stream bed sediment and rock samples. Low level aerial survey was also involved.

At 0847 hours on 6.10.79, the pilot of VH-CCV established radio communication with Darwin Flight Service Unit and advised that the helicopter was engaged on survey work "from 15 west Dorisvale to 15 south-west Dorisvale, into Dorisvale itself", the fuel endurance was 180 minutes, there were three persons on board, and a return time of 1830 hours was nominated. No further communications were received from the helicopter and, following unsuccessful communication checks, search and rescue action was initiated at 1830 hours. An extensive air and land search was commenced on the morning of 7.10.79 and continued until 1145 hours on the following day when the wreckage of VH-CCV was located, in timbered country some 15 km west of "Dorisvale", by the occupants of a searching aircraft.

The helicopter had struck the top of a 40 feet high tree while on a north-westerly heading and then crashed into a small clearing just beyond the tree. At the time of ground impact it had turned on to a south-westerly heading and was in a 45° nose down, slightly left side down attitude. There were no witnesses to the accident and the surviving passenger was unable to recall any details of the circumstances leading to the accident.

Detailed examination of the wreckage revealed that the upper and lower sections of the main drive torsion coupling were disconnected and it was not possible for engine power to be transmitted to the rotors. The six stud holes in the upper section of the coupling were severely elongated and all six attachment studs had failed after their load carrying capability had been reduced by fatigue cracking. Each of the two driving lugs of the lower section had also failed. The evidence indicates that the stud failures were progressive over a considerable number of operating hours and the lug failures were progressive and rapid during or after the stud failures. The reason for the onset of the deterioration in the coupling assembly could not be determined.

OPINION AS TO CAUSE

The probable cause of the accident was an in-flight complete loss of the ability to transfer power from the engine to the rotors in circumstances where a successful forced landing was unlikely.

Approved for publication	 (G. V. Hughes) Delegate of the Secretary	Date 17.2.1981
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DEFINITIONS

ACCIDENT - An occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all those persons have disembarked and in which

- (a) any person suffers death or serious injury as a result of being in or upon the aircraft or by direct contact with the aircraft or anything attached to the aircraft; or

Note. - Specifically excluded are: death from natural causes and fatal or serious injury to any person on board whether self-inflicted or inflicted by another person, or to ground support personnel before or after flight, or fatal or serious injury which is not a direct result of the operation of the aircraft, or which concerns stowaways.

- (b) the aircraft suffers substantial damage or is destroyed; or
- (c) the aircraft is missing or is completely inaccessible.

FATAL INJURY - Any injury which results in death within 30 days.

SERIOUS INJURY - Any injury other than a fatal injury which

- (a) requires hospitalisation for more than 48 hours, commencing within seven days from the date the injury was received; or
- (b) results in a fracture of any bone (except simple fractures of fingers, toes or nose); or
- (c) involves lacerations which cause severe haemorrhages, nerve, muscle or tendon damage; or
- (d) involves injury to any internal organ; or
- (e) involves second or third degree burns, or any burns affecting more than five percent of the body surface.

MINOR INJURY - Any injury other than as defined under "Fatal Injury" or "Serious Injury".

DESTROYED - Consumed by fire, demolished or damaged beyond repair.

SUBSTANTIAL DAMAGE - Damage or structural failure which adversely affects the structural strength, performance or flight characteristics of the aircraft and which would normally require major repair or replacement of the affected component. The following types of damage are specifically excluded: engine failure; damage limited to an engine or its accessories, or to propeller blades; bent fairings or cowlings; small dents or puncture holes in the skin; damage to wing tips, antennas, tires, or brakes.

MINOR DAMAGE - Damage other than as defined under "Destroyed" or "Substantial Damage".