

AIRCRAFT ACCIDENT INVESTIGATION SUMMARY REPORT

Reference No.

AS/711/1023

1. LOCATION OF OCCURRENCE

1½ miles North-West of Toowoomba, Queensland	Height a.m.s.l. (ft) 2000 feet	Date 22.7.71	Time (Local) 1720	Zone EST
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2. THE AIRCRAFT

Type and Model Cessna A 188	Registration VH-KVC	Certificate of Airworthiness	Valid from 5.2.68	Valid to 4.2.77
Registered Owner M. Ward, P.O. Box 2, Archerfield, Queensland.	Operator Pastoral Aviation (Qld) Pty. Ltd., P.O. Box 2, Archerfield, Queensland.	Degree of damage to aircraft Destroyed		
Defects discovered (i) There was no earth lead fitted to the alternator. (ii) The fuel vapour return hosepipe had not been positioned and secured clear of the alternator adjusting arm.		Other property damaged Nil		

3. THE FLIGHT

Last or intended departure point Toowoomba	Time of departure 1700	Next point of intended landing Toowoomba	Purpose of flight Crop Spraying	Class of operation Aerial Work
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4. THE CREW

Name	Status	Age	Class of licence	Hours on type	Total hours	Degree of injury
Mervyn WARD	Pilot	43	Commercial	500	6300	Nil

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

Name	Status	Degree of injury	Name	Status	Degree of injury

RELEVANT EVENTS

During a spray run, at a height of 20 to 30 feet, the engine suffered a complete loss of power. After manoeuvring to avoid obstructions the pilot attempted to land in a restricted but relatively flat area bordering a gully. In the landing flare the left main undercarriage struck a small bank and was torn off. The aircraft continued in flight for 192 feet, touched down on the right wheel, swung slightly right and came to rest facing 90 degrees to the line of flight. The pilot turned the ignition and master switches off. As he vacated the aircraft he noticed that thin smoke was coming from the master switch area and under the engine cowling, that paint at the top right rear of the cowling had blistered and was "bubbling", and that the rotating beacon continued to operate. He returned to the aircraft and confirmed that the master switch was off. Some 10 minutes later flames broke out at the rear of the engine.

The investigation established that in the circumstances of there being no earth lead fitted to the shock mounted alternator and the metal braided fuel vapour return hosepipe being installed in a position where it made electrical contact with the alternator adjusting arm, thus providing an earthing path, there occurred electrical arcing which finally breached the hosepipe and ignited escaping fuel. It was not possible to establish the precise sequence of events which, following initiation of the fire, then led to the complete loss of engine power but the circumstances are consistent with fire damaging the ignition or fuel systems.

Examination of the maintenance records revealed that the forward section of the aircraft had been rebuilt some 65 flying hours previously and the rebuilding included reinstallation of electrical wiring. It seems likely that the alternator earth lead was either, not re-fitted at that time, or, if it had not been fitted previously, its omission was not detected.

OPINION AS TO CAUSE

The probable cause of the accident was that during re-installation of the electrical systems an alternator earth lead was not fitted and the fuel vapour return hosepipe was positioned with inadequate clearance from the alternator adjusting arm.

Report prepared <i>D. S. Graham</i> (D. S. GRAHAM)	Designation Assistant Director-General (Air Safety Investigation)	Date 27.4.72
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