



AIRCRAFT ACCIDENT INVESTIGATION SUMMARY REPORT

SI/764/1013

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

1. LOCATION OF OCCURRENCE

Over Blackwood, 10 kilometres south of Adelaide, S. A.	Height a.m.s.l. 12000 ft. approx.	Date 27.3.76	Time (Local) 1222 hours	Zone CST
--	--------------------------------------	-----------------	----------------------------	-------------

2. THE AIRCRAFT

Make and Model Cessna 180J	Registration VH-TCU	Certificate of Airworthiness Valid from 14.10.75
Certificate of Registration issued to [REDACTED]	Operator [REDACTED]	Degree of damage to aircraft Destroyed
		Other property damaged Carport and caravan
Defects discovered		

3. THE FLIGHT

Last or intended departure point Parafield	Time of departure 1210 hours	Next point of intended landing Parafield	Purpose of flight Altitude record attempt	Class of operation Private
---	---------------------------------	---	--	-------------------------------

4. THE CREW

Name	Status	Age	Class of licence	Hours on type	Total hours	Degree of injury
[REDACTED]	Pilot	23	Senior Commercial	3	2710	Fatal

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

Name	Status	Degree of injury	Name	Status	Degree of injury

6. RELEVANT EVENTS

The flight was arranged by the pilot with the Royal Federation of Aero Clubs of Australia and was to be conducted in accordance with FAI rules governing a class of aeroplanes having piston engines and weighing from 1000 kilograms to less than 1750 kilograms. An observer was appointed to monitor the attempt. He witnessed the weighing of the aircraft and also installed a sealed barograph which was intended to substantiate the actual altitude reached.

The pilot was a flying instructor and charter pilot in the employ of Rossair Pty. Ltd. and that company assigned the aircraft for the attempt on the altitude record. Some work was carried out on the aircraft by Rossair Pty. Ltd. and the pilot in preparation for the flight. This work included the taping over of cabin air vents and the luggage door edges and the removal of the engine air filter. All surplus seats were removed and in so doing two small fire extinguishers normally stowed on the back of the right hand front seat were taken from the aircraft. A radio communication unit suitable for operation at the altitude expected to be reached was also fitted.

The pilot prepared a portable oxygen system after obtaining various components from the engineering store of Rossair Pty. Ltd. He assembled the selected components and the Rossair Pty. Ltd. Service Controller subsequently certified, on 25 March 1976, that the system complied with the appropriate standards applying to portable oxygen systems.

The system comprised the oxygen bottle, mounted on supporting brackets and fitted with a pressure reducer having an on/off control valve. Sundry fittings and flexible tubing were provided to meter and deliver oxygen to a face mask to be worn by the pilot. There was no pressure gauge but there is evidence that the bottle was charged to a pressure of about 10000 kilopascals. The pressure reducer was designed to deliver oxygen at a pressure of approximately 480 kilopascals. Before the flight the oxygen bottle, together with the attached pressure reducer and plumbing, was placed longitudinally on the floor of the right hand forward cabin area. The pressure reducer was towards the front of the aircraft. The oxygen bottle was secured in place using the lap strap which would normally be used by the occupant of the right hand front seat.

6. Relevant Events (cont')

The pilot submitted a flight plan to Parafield Air Traffic Control for a flight under the Visual Flight Rules, proceeding from Parafield over Adelaide to Lake Albert, returning over Adelaide to Parafield. The plan indicated that the aircraft would climb to Flight Level 250. The record would have been broken by the aircraft exceeding about 19000 feet.

The aircraft departed Parafield at 1210 hours and was cleared by Air Traffic Control to climb in accordance with the submitted flight plan. The weather in the Adelaide area was fine and clear. At 1219 hours the pilot made a routine radio report to Adelaide Air Traffic Control when he was over Adelaide at 10000 feet altitude. He then advised he was leaving the control frequency momentarily and he passed information on the progress of the flight to Rossair Pty. Ltd. on the discrete company frequency. At 1221 the pilot again called on the Air Traffic Control frequency and this was the last transmission from the aircraft recorded at Adelaide Air Traffic Control Centre.

At about 1222 hours, numerous witnesses in the Adelaide metropolitan area saw the aircraft climbing over the suburban area of Blackwood. Smoke and flames were then observed coming from the aircraft and after leaving a short trail of white smoke the aircraft disintegrated. Wreckage then fell over a considerable area in suburbs to the south of Adelaide. Examination of the wreckage disclosed that the aircraft broke up in flight after its structure was weakened by a fierce fire which originated in the cabin area. The source of ignition could not be determined but it is clear that the fire was considerably intensified by oxygen which escaped from the portable oxygen system carried in the aircraft. It has not been possible to establish whether oxygen was leaking from the system prior to the outbreak of the cabin fire.

The complete oxygen system was not recovered after the accident due to the extent of the destruction of the aircraft. For this reason the identity of some fittings used in assembling the oxygen system could not be positively established. The available evidence suggests that threads on some mating fittings may not have been compatible and that the system plumbing was not supported in a manner which would have guaranteed its continuing integrity. Notwithstanding that the total oxygen system was not recovered, evidence indicates that the system as constituted immediately before flight did not comply with the prescribed standards in that means were not provided to allow the pilot to determine readily the quantity of oxygen in the source of supply during flight.

7. OPINION AS TO CAUSE

There is insufficient evidence available to determine the cause of the accident.

Approved for
publication



(G. V. Hughes)
Delegate of the Secretary

Date

14.6.79

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".