NOT RELEASED.

COMMONWEALTH OF AUSTRALIA DEPARTMENT OF TRANSPORT

AIRCRAFT ACCIDENT INVESTIGATION SUMMARY REPORT

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

Reference No. V116/793/1026

1. LOCATION OF OCCURRENCE

	Height a.m.s.l.	Date	Time (Local)	Zone
23 kilometres north-west of Manangatang, Vic.	170	13.7.79	1010	EST

2. THE AIRCRAFT

Make and Model	Registration	Certificate of Airworthiness
Piper PA25/235	VH-BCJ	Valid from 26.1.79

Certificate of Registration issued to	Operator	Degree of damage to aircraft
		Destroyed
		Other property damaged: Nil

Defects discovered

Aileron control system improperly rigged.

3. THE FLIGHT

Last or intended departure point	Time of departure	Next point of intended landing	Purpose of flight	Class of operation
18 kilometres north-west of Manangatang	1000	Point of Departure	Agricultural Spraying	Aerial Work

4. THE CREW

Name	Status	Age	Class of licence	Hours on type	Total hours	Degree of injury
	Pilot	36	Commercial	350	980	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 pilot was engaged on wheat spraying operations on a property north-west of Manangatang. One field was completed and work on a second was in progress with spray runs, some 15 feet above the crop, aligned north-south. At the end of each run a pull up to a height of about 200-250 feet was made, with a procedure turn to position the aircraft for the next run.

About three quarters of the second field had been sprayed when the aircraft made a run to the north. A pull up was commenced and the aircraft was briefly noticed in a very steeply banked attitude. There were no witnesses to the final flight path but when black smoke was observed it was realised the aircraft had crashed.

The pilot was clear of the wreckage when helpers arrived at the scene, but he had sustained severe burn injuries. was heard to say on two occasions, "aileron broken". He subsequently died as a result of his injuries.

At the time of the accident weather conditions were suitable for the operation. There was no low cloud, visibility was good and there was a light westerly breeze.

Inspection of the accident site revealed that the aircraft had struck the ground in a very steep nose down, right wing down attitude, in a position beyond the northern boundary of the wheat crop. The wreckage was completely burnt out.

Inspection of the aileron control system revealed that the right hand balance cable pulley bracket had separated from the fuselage longeron to which it was attached, at the weld. Wear on the inside rear arm indicated that the cable had been operating between the pulley and the arm. The left hand balance cable pulley bracket had a wear pattern indicating the cable had been slack for some time. As a result of this misalignment cable wear had occurred at both positions. Some individual wires had failed at the two locations but the cables were still intact.

The outboard aileron pulley on each side attaches to the wing via the pulley housing and two metal straps. Examination of the straps for the left side revealed that they had failed by overload in tension. If this had occurred in flight the pilot would immediately have been deprived of all aileron control.

3. **CONCLUSIONS** (Cont'd)

For the left outboard aileron straps to fail in flight it would firstly be necessary for severe jamming of the aileron control system to occur. A very large force would then need to be applied to the pilot's aileron control. Careful examinations failed to ~~conclusively~~ determine whether or not such jamming had taken place. It was also possible that failure of the straps was part of the damage sustained during the crash.

During 1976 the aircraft had been damaged in an accident. After extensive repair work, including fitting of new aileron control system cables, the aircraft was returned to service early in 1979. Between then and the accident a total of approximately 70 hours had been flown. It could not be determined when, or in what circumstances, the aileron misrigging had occurred.

4. **OPINION AS TO CAUSE**

The cause of the accident was a loss of control during a procedure turn. The reason for this loss of control could not be determined.

Approved for publication	Delegate of the Secretary	Date