

COMMONWEALTH OF AUSTRALIA-BUREAU OF AIR SAFETY INVESTIGATION
 AIRCRAFT ACCIDENT INVESTIGATION SUMMARY REPORT

REFERENCE NO.
 SI/805/1017

1. LOCATION OF OCCURRENCE

3 km northeast of Teutonic Bore, W.A.		Height a.m.s.l.: 1000 feet
Date: 28.5.80	Time (Local): 1137 hours	Zone: WST

2. THE AIRCRAFT

Make and Model: Piper Aerostar 601 P	Registration: VH-KXY
Certificate of Airworthiness: Valid from 23.5.80	
Certificate of Registration Issued to:	Operator:
Degree of Damage to Aircraft: Destroyed	Other Property Damaged: Nil
Defects discovered: 1: Chafing between right aileron push-pull rod and right wing fuel tank supply pipe (pipe intact). 2: The fuel sumps pressure relief valves did not operate at the specified setting (only relevant when fuel systems turned off).	

3. THE FLIGHT

Last or intended departure point: Teutonic Bore	Time of departure: 1135 hours
Next point of intended landing: Leonora	
Purpose of flight: Carriage of Passengers	Class of Operation: Charter

4. THE CREW

Name	Status	Age	Class of Licence	Hours on Type	Total Hours	Degree of Injury
	Pilot	29	Commercial	149	2810	Fatal

5. OTHER PERSONS (ALL PASSENGERS AND PERSONS INJURED ON GROUND)

Name	Status	Degree of Injury
	Passenger	Minor
	Passenger	Serious

6. RELEVANT EVENTS

The aircraft was engaged on the return segment of a flight from Perth to Teutonic Bore, with an intended refuelling stop at Leonora. After embarking the two passengers and their baggage, the pilot started the engines and taxied for a take-off into the north, on the 1350 metres long main strip. The weather conditions were fine with a northerly surface wind of about 7 knots.

The initial part of the take-off run was apparently normal but, after travelling some 400 metres and at about the point of rotation, one of the passengers noted an engine power surge. The take-off was continued, the aircraft became airborne and shortly afterwards the landing gear was retracted. After the aircraft had slowly climbed straight ahead to an altitude of about 200-300 feet above ground level, the passenger heard a marked change in the engine noise and felt the aircraft decelerating. The extent of the power loss and the absence of any yawing force indicated both engines had lost power simultaneously. Level flight straight ahead was reportedly maintained for an estimated 10 seconds and then the aircraft entered a descending left turn. At about this time the pilot, in response to a query from the passenger, advised that he intended to return to the airstrip but then stated "we're going down", or words to that effect.

The terrain in the area was generally firm and flat. It was lightly covered with scrub and there was occasional small trees but a safe landing with only minimal damage was possible.

When VH-KXY struck the ground the gear and flaps were retracted and the rate of descent was high. The aircraft was in a level attitude but yawed approximately 45 degrees to the right. After the initial impact, the aircraft slid across the ground on a track of 220 degrees magnetic for 67 metres before coming to rest.

There was no post-impact fire. One passenger was able to exit via the cabin door by his own efforts. The other occupants were trapped in the wreckage and were rescued some 30 minutes later by persons who attended the accident. The pilot died shortly after being removed from the aircraft.

Examination of the wreckage found no evidence of pre-existing defect or malfunction that would have contributed to the accident. Although there was evidence that both engines had lost power, damage sustained by the propellers indicated that only the right engine was producing little or no power at ground impact whilst the left engine was producing high power. A sudden recovery by the left engine just prior to ground contact was consistent with the yawed attitude of the aircraft, although there was some evidence that the pilot might have applied right rudder at that time.

The only system common to both engines, and hence the most likely to have caused the apparent simultaneous loss of power, was the fuel system. This contained an adequate amount of uncontaminated fuel of the correct grade and the only abnormal finding was that both left and right engine boost pump switches were in the OFF position. The aircraft Flight Manual required that these pumps be selected on for take-off to ensure an uninterrupted fuel supply to the engines.

6. RELEVANT EVENTS (CONT'D)

It was established that on the flight from Perth to Teutonic Bore, the pilot had operated both engines on crossfeed from the opposing wing fuel tanks. This procedure, known as double-crossfeed, was contrary to Flight Manual instructions; double-crossfeed should only be used in an emergency because of the risk of a power interruption caused by uncovering fuel tank outlet ports. When examined, the right engine fuel system was found to be in the normal ON configuration. The left engine fuel system selector was at the X-FEED position but the system valves were in the normal ON operating positions. Therefore the selector had been moved to the X-FEED position subsequent to the loss of electrical power; probably during the rescue of the occupants. It could not be established when the change from double-crossfeed to normal ON had been made.

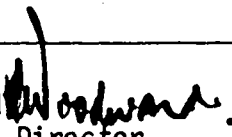
Flight tests were carried out in other Aerostar 601 P aircraft to study the effects of various abnormal fuel system settings. For reasons of safety the tests were carried out at an altitude which permitted the engines to be restarted in the event of failure. The results were inconclusive because of this restraint but they did confirm that an engine which is operating on crossfeed can lose power because of an uncovered tank outlet port even though there is considerable fuel in the tank. The tests also indicated that to regain power subsequent to such failure it was not sufficient to just change the aircraft attitude and thereby again immerse the fuel tank outlet port. It was found necessary to also either turn the boost pump on or to reposition the fuel selector from X-FEED to the normal ON position. In both cases power was then restored after approximately 10 seconds.

It was not established what action, if any, the pilot of VH-KXY took to restore engine power. It was evident, however, that he had not configured the aircraft for a forced landing and had not maintained a safe airspeed. When the left engine recovered, the aircraft was at too low an altitude and too slow to prevent an accident.

7. OPINION AS TO CAUSE

The probable cause of the accident was that, following a substantial loss of power by both engines, the pilot did not carry out the procedures necessary for a safe forced landing. The cause of the loss of power by both engines has not been determined.

Approved for publication under the provisions of Air Navigation Regulation 283(1)

(A.R. Woodward 
Ag. Director

Date:

19.10.82