Aviation Safety Investigation Report 199201731

SOCATA - Groupe Aerospatiale Tobago

08 January 1992

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NOTE: All air safety occurrences reported to the ATSB are categorised and recorded. For a detailed explanation on Category definitions please refer to the ATSB website at www.atsb.gov.au.

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Occurrence Number: 199201731 **Occurrence Type:** Accident
Location: Fairfield Heights
State: NSW **Inv Category:** 2
Date: Wednesday 08 January 1992
Time: 1548 hours **Time Zone** ESuT
Highest Injury Level: Serious
Injuries:

	Fatal	Serious	Minor	None	Total
Crew	0	1	1	0	2
Ground	0	0	0	0	0
Passenger	0	0	0	0	0
Total	**0**	**1**	**1**	**0**	**2**

Aircraft Manufacturer: SOCATA - Groupe Aerospatiale
Aircraft Model: TB-10
Aircraft Registration: VH-JTQ **Serial Number:** 510
Type of Operation: Instructional Dual
Damage to Aircraft: Destroyed
Departure Point: Bankstown NSW
Departure Time: 1544 ESuT
Destination: Bankstown NSW

Crew Details:

Role	Class of Licence	Hours on Type	Hours Total
Student Pilot	Student	0.1	60

Approved for Release: Monday, August 29, 1994

The aircraft had departed from runway 11L for a dual instructional flight to the local training area. Late on the downwind leg, when the aircraft was slow to reach the required 1,500 ft, the Tower requested the aircraft to maintain 1,000 ft due to incoming traffic. Soon after, the aircraft experienced a partial loss of engine power and the instructor reported he was returning to the aerodrome. Almost immediately after this radio call was made, the engine failed completely. The instructor made a brief Mayday call then turned right towards a park, as he was unable to reach the aerodrome. The aircraft overshot the park, striking a light pole which severed the left wing. It then rolled to the left, struck a mesh fence, and came to rest on its side in a carpark, with the right wing under a parked car.

Examination revealed that the left exhaust stacks had separated from the muffler. Leaking hot exhaust gas had then burned through the cowling and also burned the insulation from electrical wiring, including the magneto switch wires which shorted to ground, resulting in a complete loss of engine power.

Why the clamping hardware for the exhaust stacks separated was not determined. However the hardware, consisting of a clamp, bolt and two plain nuts which form a locknut when tightened against each other, operate in a harsh environment. Should any of the nuts become loose it is likely that engine vibration would rapidly lead to separation of the exhaust system.

The densely populated area, over which the aircraft was flying when the engine failed, was unsuitable for a safe forced landing.

Significant factors:

1. The engine exhaust clamp bolts worked loose and the right exhaust pipes separated from the muffler.

2. Escaping exhaust gases caused damage to the magneto wiring insulation, resulting in the loss of the ignition scource and loss of engine power.

3. The aircraft was over an area which was unsuitable for a successful forced landing.

SAFETY ACTION

As a result of the investigation into this and a similar occurrence (OASIS 9400441) The Bureau of Air Safety Investigation met with the Civil Aviation Authority Airworthiness (Powerplants) staff and discussed the apparent deficiencies with the exhaust clamping arrangements.

The CAA researched the available data and located a SOCATA Service Bulletin (SB), SB 10-073-78, which had been released in January 1994. The CAA subsequently issued Aerospatiale (SOCATA) TB9, TB10 and TB20 Airworthiness Directives (ADs) AD/TB10/20, AD/TB10/21 and AD/TB20/27 effective 26 May 1994 mandating compliance with the manufacturers SB within 50 Hours time of service.

This prompt action by the CAA, in full consultation with the Bureau of Air Safety Investigation, obviated the need for any formal safety output.