Aviation Safety Investigation Report 198800113

Thorpe T18

14 February 1988

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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.

Occurrence Number: 198800113 **Occurrence Type:** Accident
Location: Serpentine (22 kms South of Jandakot WA)
Date: 14 February 1988 **Time:** 1750 WST
Highest Injury Level: Serious
Injuries:

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

Aircraft Details: Thorpe T18
Registration: VH-CJO
Serial Number: Nil
Operation Type: Private
Damage Level: Substantial
Departure Point: Serpentine
Departure Time: 1750
Destination: Serpentine

Approved for Release: 4 August 1988

Circumstances:

Earlier on the day of the accident the pilot had experienced a loss of engine power during an attempted takeoff. The problem did not reoccur during a static engine run-up, and the pilot assessed the possible cause as being the hot air temperature. Flight was again attempted later in the afternoon, however, shortly after takeoff at approximately 60 feet above ground level the engine ran roughly, lost all power and produced black smoke. The pilot closed the throttle and attempted to land straight ahead. The aircraft touched down at the end of the strip, entered an overrun area of soft sand and overturned. Examination of the engine revealed that it had been operating on an excessively rich mixture. It was found that an incorrect model carburettor had been fitted, which would have provided too rich a mixture. The engine was being operated using a mixture of mogas and avgas, and the synthetic float in the carburettor was found to be significantly heavier than that specified due to absorption of mogas products. Tests indicated that the resulting high level of fuel within the carburettor float chamber, when combined with pitch changes associated with takeoff and initial climb, caused significant power loss and rough running due to spillage of fuel into the carburettor throat. Simulating the effects of turbulence and vibration exacerbated the power loss, and it is probable that the engine had lost all power due to a rich cut.

Significant Factors:

It was considered that the following factors were relevant to the development of the accident

1. No application had been made to the Airworthiness authority to use mogas. On initial installation the engine was rated at 150 HP, and any approval for the use of mogas would have been subject to the fitment of a suitable carburettor float. Prior to the accident the engine had been uprated to 160 HP, and any previously issued approval for the use of mogas would have been withdrawn at that time.

2. The incorrect model of carburettor fitted to the engine provided too rich a mixture. This incorrect fitment had apparently not been noted or documented during certification and servicing of the aircraft.

3. Despite prior indications of engine abnormality, the pilot had not sought qualified engineering advice before attempting a further flight.

4. The engine failure occurred at a height and position that precluded a successful forced landing.

Reccomendations:

It is recommended that the Civil Aviation Authority reissue an information circular to appropriate aircraft owners, pilots and engineers on the potential problems that may be encountered by the use of mogas without prior approval.