Australian Government
Australian Transport Safety Bureau

Engine failure and collision with terrain involving Ryan Aeronautical Company STA-SPL, VH-SQD

14 km NNW of Tyabb ALA, Victoria, 15 November 2016

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Aviation Occurrence Investigation
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Addendum

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Engine failure and collision with terrain involving Ryan Aeronautical Company STA-SPL, VH-SQD

What happened

On 15 November 2016, at about 1150 Eastern Daylight-saving Time (EDT), a Ryan STA-SPL aircraft, registered VH-SQD, departed from Tyabb aircraft landing area (ALA), Victoria, for a private local pleasure flight. The pilot was the sole occupant of the aircraft.

About 10 minutes after take-off, when at about 1,000 ft above mean sea level, the aircraft's engine suddenly stopped, then briefly restarted and then stopped again. The pilot conducted a forced landing into a field. The aircraft landed heavily and with a tailwind, and the pilot assessed that the aircraft may not slow down sufficiently before a fence up ahead. The pilot therefore used the available airspeed to take-off again and fly the aircraft about 15 ft over the fence. The pilot aimed the aircraft's wing at a tree to reduce the remaining speed and ensure it stopped prior to a major freeway. The aircraft collided with the tree, then the ground and was substantially damaged (Figure 1). The pilot sustained a minor injury.

Figure 1: Accident site showing damage to VH-SQD

Source: Victoria Police

Engineering report

A post-accident inspection found no evidence indicating the cause of the engine failure.

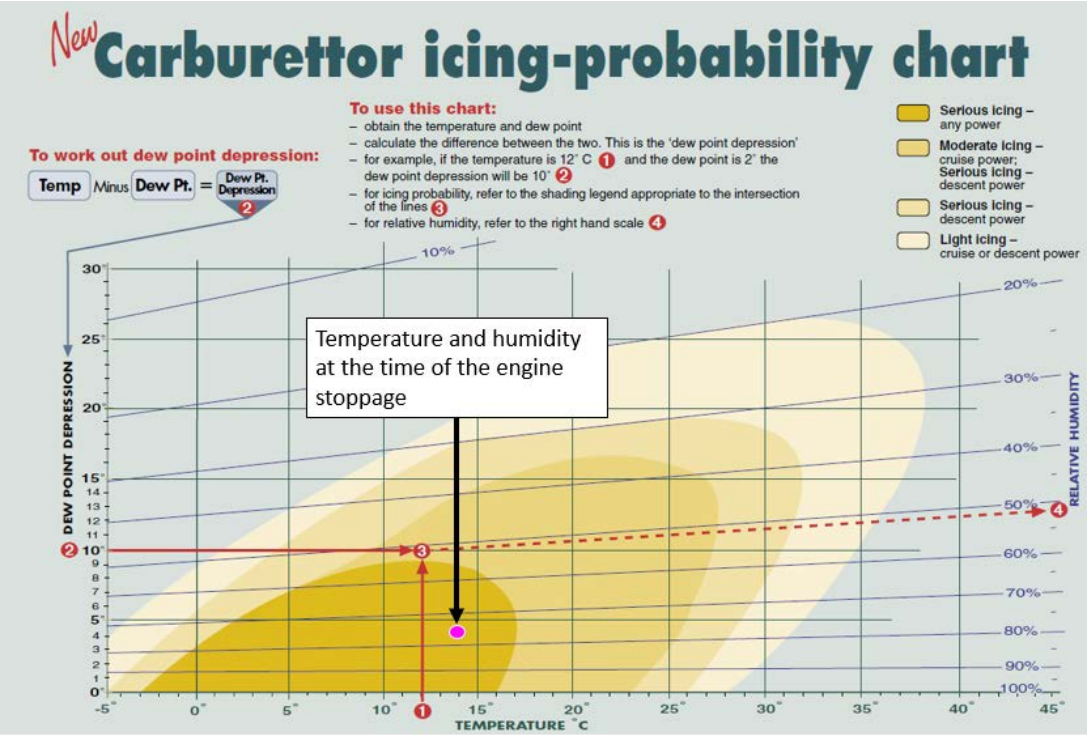
Pilot comments

The pilot reported that their priorities in the event of engine failure were to control the aircraft, land as soon as possible, and get rid of any excess energy (speed). The conditions may have been conducive to carburettor icing, but the aircraft was not fitted with carburettor heat.

Weather conditions and carburettor icing

The temperature at the time of the accident was 14 °C, the relative humidity 76 per cent, and the dew point depression 4 °C. According to the carburettor icing probability chart (Figure 2), there was a serious risk of carburettor icing at any power setting.

Figure 2: Carburettor icing probability chart



Source: CASA – annotated by ATSB

Safety analysis

The engine probably stopped due to carburettor icing, and the aircraft was not (and was not required to be) fitted with carburettor heat.

The aircraft was below 1,000 ft above ground level when the engine failed and the pilot had limited options for landing sites. The pilot landed the aircraft with a tailwind component, and directed the aircraft towards a tree to reduce the ground roll and prevent the aircraft continuing onto a freeway.

Findings

These findings should not be read as apportioning blame or liability to any particular organisation or individual.

- The engine probably failed due to carburettor icing, at relatively low level and with few options for the pilot to safely conduct a forced landing.

Safety message

It is essential to have a plan and practise simulated forced landings to assist in reducing the consequences of conducting one in the event of engine failure. The height above ground at which an engine failure occurs affects the time available to complete failure management checks and select an appropriate landing site.

General details

Occurrence details

Date and time:	15 November 2009 – 1200 EDT	
Occurrence category:	Accident	
Primary occurrence type:	Engine failure or malfunction	
Location:	14 km NNW of Tyabb ALA, Victoria	
	Latitude: 38° 08.57' S	Longitude: 145° 08.72' E

Aircraft details

Manufacturer and model:	Ryan Aeronautical Company STA-SPL	
Registration:	VH-SQD	
Serial number:	193	
Type of operation:	Private – Pleasure/Travel	
Persons on board:	Crew – 1	Passengers – 0
Injuries:	Crew – 1 Minor	Passengers – 0
Aircraft damage:	Substantial	

About the ATSB

The Australian Transport Safety Bureau (ATSB) is an independent Commonwealth Government statutory agency. The ATSB is governed by a Commission and is entirely separate from transport regulators, policy makers and service providers. The ATSB's function is to improve safety and public confidence in the aviation, marine and rail modes of transport through excellence in: independent investigation of transport accidents and other safety occurrences; safety data recording, analysis and research; and fostering safety awareness, knowledge and action.

The ATSB is responsible for investigating accidents and other transport safety matters involving civil aviation, marine and rail operations in Australia that fall within Commonwealth jurisdiction, as well as participating in overseas investigations involving Australian registered aircraft and ships. A primary concern is the safety of commercial transport, with particular regard to operations involving the travelling public.

The ATSB performs its functions in accordance with the provisions of the *Transport Safety Investigation Act 2003* and Regulations and, where applicable, relevant international agreements.

The object of a safety investigation is to identify and reduce safety-related risk. ATSB investigations determine and communicate the safety factors related to the transport safety matter being investigated.

It is not a function of the ATSB to apportion blame or determine liability. At the same time, an investigation report must include factual material of sufficient weight to support the analysis and findings. At all times the ATSB endeavours to balance the use of material that could imply adverse comment with the need to properly explain what happened, and why, in a fair and unbiased manner.

About this report

Decisions regarding whether to conduct an investigation, and the scope of an investigation, are based on many factors, including the level of safety benefit likely to be obtained from an investigation. For this occurrence, a limited-scope, fact-gathering investigation was conducted in order to produce a short summary report, and allow for greater industry awareness of potential safety issues and possible safety actions.