Australian Government
Australian Transport Safety Bureau

Total power loss – Gippsland Aeronautics GA-8 Airvan, VH-FCK

Ti Tree, Northern Territory – 6 July 2012

ATSB Transport Safety Report
Aviation Occurrence Investigation
AO-2012-092
Final

Report No. AO-2012-092

Publication date 29 October 2012

Released in accordance with section 26 of the *Transport Safety Investigation Act 2003*

Publishing information

Published by: Australian Transport Safety Bureau
Postal address: PO Box 967, Civic Square ACT 2608
Office: 62 Northbourne Avenue Canberra, Australian Capital Territory 2601
Telephone: 1800 020 616, from overseas +61 2 6257 4150
Accident and incident notification: 1800 011 034 (24 hours)
Facsimile: 02 6247 3117, from overseas +61 2 6247 3117
Email: atsbinfo@atsb.gov.au
Internet: www.atsb.gov.au

Total power loss – Gippsland Aeronautics GA-8 Airvan, VH-FCK

AO-2012-092

What happened

On 6 July 2012, a Gippsland Aeronautics GA-8 Airvan aircraft, registered VH-FCK (FCK), departed Tennant Creek on a night training flight to Alice Springs, Northern Territory.

At about 1920 Central Standard Time (CST)[1], when maintaining 7,500 ft above mean sea level (AMSL), the crew noticed that the engine oil pressure indication was slightly lower than normal.

VH-FCK engine damage

Source: *Maintenance organisation*

The crew continued to monitor the oil pressure and, at about 1955, having noted the pressure dropping further, they began planning for a diversion to the Ti Tree aeroplane landing area (ALA). The instructor had flown into the ALA the previous week and reported using the pilot activated lighting (PAL)[2] system without any issues[3]. The crew relayed their intentions to air traffic control (ATC) via VH-XGN, a Cessna 310 cruising in the vicinity at a higher altitude.

At about 2000, the engine oil pressure light illuminated, necessitating an immediate landing. The crew then diverted to the Ti Tree ALA and attempted to activate the runway PAL system via the designated frequency, without success. The pilot reported that the unsuccessful attempt to activate the PAL system had cost them valuable time in searching for another suitable landing area.

Shortly after, when abeam the township of Ti Tree, the engine began to run rough and subsequently stopped. The instructor then noticed a vehicle travelling on a road to the north of the town. They elected to abandon the landing at the unlit ALA and, following the vehicle's lights, carried out a successful landing onto the Stuart Highway, 4 km north of the township.

ATC had alerted the emergency services, who arrived a short time later.

Engine examination

The engine was removed from the aircraft and disassembled by a contracted maintenance organisation. The assessment by the maintenance organisation at the time of writing this report was that the failure was a result of a No. 6 connecting rod, big end cap bolt failure (Figure 1)

---

1 Central Standard Time (CST) was Coordinated Universal Time (UTC) + 9.5 hours.

2 Pilot activated runway and taxiway lighting is activated by a series of timed transmissions using the aircraft's very high frequency radio, on either a discrete or the local airport communication frequency.

3 The instructor also reported that he had flown into the ALA on at least one other occasion at night in the previous month and had successfully used the PAL system.

Figure 1: VH-FCK engine damage

Source: Maintenance organisation

PAL system

The serviceability of the PAL system at Ti Tree was queried with the operator of the ALA. The operator advised that, as far as they were aware, the PAL system was reported as unreliable about four years prior and had not been tested since. They did not know if it had been rectified as this was prior to them taking over control of the ALA, but they did not actively maintain or monitor the system; it was considered to be not in use.

When lighting was required by an inbound aircraft, such as the Royal Flying Doctor Service (RFDS), a responsible person on the ground would manually activate the system. The RFDS confirmed that their pilots did not use the PAL facility, but rather, pre-arranged for ground personnel to activate the lighting for them.

The Aircraft Owners and Pilots Association of Australia National Airfield Directory (2010/11) stated that the runway lighting at the Ti Tree ALA was on an electric 2.5 hr time switch (to be activated by ground personnel) and PAL. That Directory was the only source of information on the status of the PAL system for pilots but did not detail any issues with the serviceability of the system. The pilot had also successfully used the system recently and therefore assumed that it was serviceable.

Safety action

Whether or not the ATSB identifies safety issues in the course of an investigation, relevant organisations may proactively initiate safety action in order to reduce their safety risk. The ATSB has been advised of the following proactive safety action in response to this occurrence.

Northern Territory Government

The Northern Territory Department of Construction has advised the ATSB that the runway lighting system at the Ti Tree ALA was undergoing an upgrade. That upgrade was mid-September 2012

at which time the lighting became solar powered and capable of automatically turning on each night from sun down.

Safety message

One of the greatest concerns for pilots operating single-engine aircraft is the prospect of a total power loss at night. Should such an event occur, it is crucial that pilots are mentally prepared to act immediately. The crew of FCK were faced with an engine failure at night in a remote location, which was further exacerbated by the unsuccessful activation of the PAL runway lighting system at the Ti Tree ALA. In this instance, the crew of FCK quickly changed their plan and made a successful landing on a road, with no injuries or aircraft damage sustained. This incident demonstrates how responding to an adverse situation promptly can result in a positive outcome.

Aircraft details

Manufacturer and model:	Gippsland Aeronautics GA-8 Airvan	
Registration:	VH-FCK	
Type of operation:	Flying training	
Location:	Ti Tree, Northern Territory	
Occurrence type:	Total power loss	
Persons on board:	Crew – 2	Passengers – 1
Injuries:	Crew – Nil	Passengers – Nil
Damage:	Nil	

About the ATSB

The Australian Transport Safety Bureau (ATSB) is an independent Commonwealth Government statutory agency. The Bureau 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 fare-paying passenger operations.

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.