



Australian Government

Australian Transport Safety Bureau

Partial engine failure involving a Gippsland Aeronautics GA-8, VH-FGN

near Busselton Airport, Western Australia, on 21 October 2015

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Addendum

| Page | Change | Date |
|------|--------|------|
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Partial engine failure involving a Gippsland Aeronautics GA-8, VH-FGN

What happened

On 21 October 2015, a Gippsland Aeronautics GA-8 aircraft, registered VH-FGN (FGN), was conducting parachute operations at Busselton Airport, Western Australia (Figure 1). Prior to commencing the day's operations, a company pilot conducted a pre-flight inspection of the aircraft, with no defects found.

Figure 1: VH-FGN



Source: Aircraft operator

At about 1500 Western Standard Time (WST), FGN took off from Busselton Airport with a pilot and seven parachutists on board. As the aircraft climbed through about 2,000 ft, the pilot observed a decrease in the engine manifold pressure. The manifold pressure was still in the green arc, or normal operating range, but indicating about 30 inches. The normal manifold pressure during the climb was about 38 inches. The fuel flow also increased from about 120 L/hr to 154 L/hr. As the aircraft was tracking south towards forested terrain, the pilot elected to turn back towards the aerodrome, and continue the climb, in case the engine issue worsened. The pilot conducted the standard engine checks, but the engine continued to produce only partial power. The pilot broadcast a Mayday¹ on the Melbourne Centre air traffic control (ATC) frequency.

¹ Mayday is an internationally recognised radio call for urgent assistance.

The pilot advised the parachutists that they would establish the aircraft in the drop run overhead the aerodrome at about 4,000 ft (instead of the planned FL 140²) to allow the parachutists to exit the aircraft. As the pilot subsequently reduced engine power to allow the parachutists to exit the aircraft, the engine ran roughly. Six of the parachutists exited normally and landed safely at the drop zone, while the seventh, who was also a company pilot and seated in the front passenger seat, remained in the aircraft with the pilot in command.

The pilot then increased the aircraft's power until the engine ran smoothly, although only producing partial power, while continuing the descent to the aerodrome. The pilot also advised ATC that they did not require immediate assistance and downgraded to a PAN³, as the engine continued to produce some power. The aircraft landed safely at Busselton at about 1514.

After shutting down the engine, the pilot consulted with the maintainer, and found that the intake tube on the No. 4 cylinder was loose.

Aircraft maintenance and engineering inspection

On 10 October 2015, a licensed aircraft maintenance engineer had completed a 100-hourly inspection on the aircraft, including a 'top overhaul' of the engine.

After the incident, the engineer completed the following:

- removed the bolts and inspected the wire thread (Helicoil) inserts, and found no damage
- fitted a new intake gasket and o-ring to the intake tube, and resecured the tube to the No. 4 cylinder with new spring washers
- checked the torque of all other intake tube bolts, and found none loose.

Safety message

This incident highlights the importance of having thoroughly rehearsed emergency procedures, particularly for parachute operations. The parachutists had, in accordance with standard procedures, removed the single point restraints during the climb, and were prepared to exit the aircraft quickly.

For pilots, this provides a reminder that constant monitoring of the engine instruments can provide early indication of a problem. Acting quickly on this information may reduce the impact of partial or total power loss on flight safety.

The ATSB publication [Avoidable Accidents No. 3 – Managing partial power loss after takeoff in single-engine aircraft](#), provides information also relevant to partial losses of power in flight as well as after take-off. Following a complete engine failure, a forced landing is inevitable. For a partial power loss, pilots are faced with deciding whether to continue the flight or land immediately.

² At altitudes above 10,000 ft in Australia, an aircraft's height above mean sea level is referred to as a flight level (FL). FL 140 equates to 14,000 ft.

³ An internationally recognised radio call announcing an urgency condition which concerns the safety of an aircraft or its occupants but where the flight crew does not require immediate assistance.

General details

Occurrence details

| | | |
|--------------------------|---|--------------------------|
| Date and time: | 21 October 2015 – 1514 WST | |
| Occurrence category: | Incident | |
| Primary occurrence type: | Engine failure or malfunction | |
| Location: | near Busselton Airport, Western Australia | |
| | Latitude: 33° 41.23' S | Longitude: 115° 24.02' E |

Aircraft details

| | |
|-------------------------|--------------------------------|
| Manufacturer and model: | Gippsland Aeronautics GA-8 |
| Registration: | VH-FGN |
| Serial number: | GA8-03-025 |
| Type of operation: | Private – Parachute Operations |

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.