

SERIOUS INCIDENT

Aircraft Type and Registration:	Piper PA-28-140, G-AVLG	
No & Type of Engines:	1 Lycoming O-320-E3D piston engine	
Year of Manufacture:	1967 (Serial no: 28-23358)	
Date & Time (UTC):	26 June 2023 at 1050 hrs	
Location:	Near Thruxton Aerodrome, Hampshire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	None	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	25 years	
Commander's Flying Experience:	90 hours (of which 37 were on type) Last 90 days - 15 hours Last 28 days - 0 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and enquiries made by the AAIB	

Synopsis

During preparation for a flight from Bournemouth Airport to Thruxton Aerodrome, the pilot noted that '11 US gal' was recorded in the aircraft Technical Log (Tech Log), which would be sufficient fuel for this short flight. However, during the approach to Thruxton the aircraft ran out of fuel, and the pilot conducted a successful forced landing in a field.

It was established that the quantity of fuel recorded in the Tech Log was incorrect and there was insufficient fuel onboard to complete the flight to Thruxton.

History of the flight

The aircraft was being flown from Bournemouth Airport to Thruxton Aerodrome where it would be refuelled before being flown to its base at Middle Wallop Airfield. The pilot joined left base at Thruxton for a landing on Runway 25. He completed his downwind checks and as he turned onto Final, the engine began to run roughly and lost power. The pilot switched to the right fuel tank which appeared to have no effect on the engine power. Realising he would not make the runway threshold, he selected a field just to the right of the extended centre line and carried out an uneventful forced landing. The aircraft was undamaged and the pilot uninjured.

Shortly after landing the pilot established, by running the fuel pump and checking the fuel pressure, that the left fuel tank was empty and that some fuel remained in the right tank.

Circumstances leading to the fuel exhaustion

Fuel on board at the start of the flight

Following its annual inspection at Bournemouth, the pilot was asked to collect the aircraft. At Bournemouth he checked the Tech Log and satisfied himself that the work had been completed and certified. He also noted that the fuel recorded in the log was '11 US gal'. The pilot decided to refuel the aircraft at Thruxton and then continue to Middle Wallop as he considered that the quantity of fuel in the aircraft would be sufficient for the 20-minute flight, with a reserve.

While carrying out the A-Check the pilot was unable to find the fuel tank dipstick in the aircraft. As no other suitable dipstick was available, he checked the fuel levels by looking into each tank through the filler cap. At this point he believed he saw an amount of fuel which he reported "matched my expectations believing I knew how much fuel was on board". He also noted that the fuel gauges were "off the stops" and so assumed there was fuel in the tanks. However, calculations based on this aircraft and the route flown, suggested that rather than 11 US gal, there was only between 5 and 7 US gal of usable fuel in the aircraft fuel tanks at the start of the flight. It is not known what the distribution of fuel was between the two tanks.

Fuel onboard on arrival at Bournemouth

The Tech Log showed that there was 11 US gal of fuel on board the aircraft before it was flown to Bournemouth for the maintenance. However, the Tech Log had not been completed following the flight to Bournemouth and, therefore, there was no record of the amount of fuel remaining in the aircraft when it landed. There was also no record of the amount of fuel used during the engine runs carried out during the maintenance.

Confirmation bias

The aircraft operator had a fuel account at Thruxton as Avgas is not always easily available at Middle Wallop where the aircraft is based. It was, therefore, normal practice to refuel at Thruxton. Refuelling at Bournemouth was not considered as the pilot thought he had enough fuel in the aircraft for the first part of the flight. Moreover, refuelling at Thruxton followed by a very short flight to Middle Wallop, would ensure the aircraft had the maximum amount of fuel onboard for flying the next day.

Comment

The pilot attempted to rectify the loss of engine power by switching to the right fuel tank. When this appeared to have no effect, he took immediate action to conduct a forced landing in a field rather than try to stretch the glide to make the runway. Had he not done so, the outcome may have been different.

On this occasion, the pilot believes that when he looked in the fuel tanks at Bournemouth, he experienced confirmation bias because he was expecting to see fuel present based on what he read in the Tech Log.

The pilot was misled by the entry in the Tech Log, which had not been completed after the last flight, as to the quantity of fuel on board the aircraft. Fuel, and oil, might be consumed during a period of maintenance, and therefore any quantities of fluid entered in the Tech Log prior to the start of the maintenance should be treated with caution.