

ACCIDENT

Aircraft Type and Registration:	Morane Saulnier Rallye 150ST, G-BDWH	
No & Type of Engines:	1 Lycoming O-320-E2A piston engine	
Year of Manufacture:	1976 (Serial no: 2697)	
Date & Time (UTC):	21 August 2018 at 1247 hrs	
Location:	Blackpool Corner, Dorset	
Type of Flight:	Private	
Persons on Board:	Crew - 2	Passengers - None
Injuries:	Crew - 2	Passengers - N/A
Nature of Damage:	Aircraft destroyed	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	77 years	
Commander's Flying Experience:	700 hours Last 90 days - 6 hours Last 28 days - 1 hour	
Information Source:	Aircraft Accident Report Form submitted by the pilot and further enquiries by the AAIB	

Synopsis

An uncontained fire, from a fuel leak, started in the aircraft's engine compartment shortly after the aircraft had departed Pymore Farm airstrip on a flight to Dunkeswell Airfield. The aircraft was flying over an area of small fields in undulating terrain, and the pilot's approach to his selected field resulted in an overshoot. The aircraft collided with a hedge in the resulting forced landing, and despite being injured, both occupants were able to vacate the aircraft. The aircraft was destroyed in the accident. The source of the fuel leak within the engine compartment was not established due to fire and impact damage of the fuel system components.

History of the flight

The pilot had intended to fly the aircraft from Pymore Farm airstrip, Dorset, to Dunkeswell Airfield in Devon with a passenger, who also held a PPL(A). The aircraft had not undergone any recent maintenance activity and the previous six-month check had been completed in April 2018. The pilot had last flown the aircraft on 22 July 2018, during which it had performed normally.

After checking the fuel quantity in the wing fuel tanks, which totalled approximately 56 litres of AVGAS 100LL fuel, he conducted a daily inspection of the aircraft without noting any abnormalities. The engine start, pre-departure and run-up checks were completed normally and the aircraft took off and climbed to an altitude of approximately 1,200 ft. Weather conditions were good, with no low cloud and a visibility in excess of 10 km.

Approximately five minutes after takeoff the pilot noticed smoke entering the cabin from beneath the instrument panel. He unlatched the canopy and slid it open slightly to vent the smoke. The pilot recalled that the engine instruments displayed readings consistent with normal operation of the engine. Suspecting an electrical fire, he switched the electrical master switch OFF, and about this time the engine stopped but the propeller continued to windmill. The pilot switched the fuel selector valve from the right tank to the left tank, but the engine did not restart; he could not recall whether he then switched the fuel valve OFF. The aircraft was flying above an undulating area of small fields and woodland and the pilot selected a field to land in but was too high and had to overshoot towards a solar farm that lay beyond his selected field. The aircraft was too low to clear the solar farm into another field beyond and the aircraft landed within the solar farm complex, avoiding contact with the solar panels and a sub-station building but colliding with the boundary hedge (Figure 1). A witness who saw the accident confirmed that it was on fire during the final stages of the flight.

The pilot and his passenger were injured in the accident but managed to extract themselves from the aircraft, with the passenger providing assistance to the pilot. The aircraft continued to burn until the fire was extinguished by the emergency services.



Figure 1

Accident location (courtesy Google Earth)

Accident site and wreckage examination

The aircraft touched down shortly before the boundary hedge with a very short ground roll that was consistent with the aircraft flying at, or close to, the stall prior to touchdown (Figure 2). The AAIB conducted an examination of the wreckage prior to its recovery in order to try to establish the cause of the fire.

**Figure 2**

Accident site

The majority of the fuselage and the engine compartment had been severely damaged by the fire. The crankcase had partially melted, exposing the sump and no oil remained in the engine. The remains of the engine compartment fuel hoses and their connections to the electric boost pump, engine-driven fuel pump and carburettor were identified in the wreckage, however fire-damage prevented assessment of their condition and security prior to the fire. It was observed that the fuel hose between the engine-driven fuel pump and the carburettor had detached from the carburettor, although this may have occurred during the ground impact.

The right wing's fuel tank had ruptured in the ground impact and no fuel remained within the tank. The left wing's fuel tank had remained intact and 28 litres of AVGAS 100LL were recovered from it.

Analysis

The normal operation of the engine prior to the start of the fire, including the oil temperature and pressure indications, indicates that the fuel source for the fire was likely to be leaking fuel rather than oil from the engine. The engine continued to run for a short period after the first signs of smoke from the fire, which is consistent with fuel being drawn from the carburettor float bowl despite a leak elsewhere in the engine's fuel system. The engine's hot exhaust system would have provided sufficient heating of any leaking fuel to allow its auto-ignition in the absence of any other ignition sources. Damage to the engine's fuel system sustained during the fire and accident impact prevented identification of the source of the leaking fuel.

The pilot was faced with a hazardous situation whilst flying over an area of small fields in undulating terrain. Once it became clear that he was overshooting his chosen field, his remaining landing options were limited. The aircraft's low airspeed at impact minimised the resulting deceleration during the collision with the solar park boundary hedge, probably limiting the extent of the injuries sustained by the pilot and his passenger.

Conclusion

Leaking fuel within the aircraft's engine compartment led to an uncontained fire shortly after the aircraft had departed Pymore Farm airstrip. The aircraft was damaged in the resulting forced landing, and the pilot and passenger both sustained injuries but were able to vacate the aircraft after the accident. The cause of the fuel leak was not established.