

ACCIDENT

Aircraft Type and Registration:	Quik GT450, G-CFKJ	
No & Type of Engines:	1 Rotax 912ULS piston engine	
Year of Manufacture:	2008 (Serial no: 8405)	
Date & Time (UTC):	2 December 2019 at 0840 hrs	
Location:	Field approx 2 miles north-east of Caernarfon Airport, Gwynedd	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Damage to pod, windshield, wheel spat. and electrical systems	
Commander's Licence:	National Private Pilot's Licence	
Commander's Age:	61 years	
Commander's Flying Experience:	534 hours (of which 534 were on type) Last 90 days - 17 hours Last 28 days - 0 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

During a local flight, the engine stopped and could not be restarted. A field was selected for a forced landing and at a late stage of the approach, the aircraft struck overhead power cables which were not seen by the pilot or the passenger. The cables were severed, the aircraft sustained minor damage and the occupants were uninjured. The most probable cause of the engine stopping was carburettor icing.

History of the flight

The pilot planned a local flight from Caernarfon Airport and the aircraft took off at 0820 hrs from Runway 25. The weather was good with the wind from 140° at 3 kt, scattered cloud at 2,500 ft, air temperature of 3°C, dew point at 3°C and 100% humidity. After approximately 15 minutes flying time the engine "spluttered". The engine power was reduced to a normal cruise setting and the engine spluttered a further three times and then stopped. It could not be restarted. The aircraft was at a height of approximately 1,200 ft when the pilot positioned the aircraft for an into wind, field landing; however, late on the approach, the aircraft struck and severed the 11,000-volt power cables which crossed the field (Figure 1). The aircraft sustained extensive damage to its electrical systems and minor damage to the pod, windshield and wheel spat. The occupants were uninjured.

The pilot stated that his forward visibility was partially obscured by condensation on the windshield and his helmet visor which, with the low winter sun, meant it had not been possible to see the power cables. The passenger, whose view was restricted by the pilot, also did not see the cables.

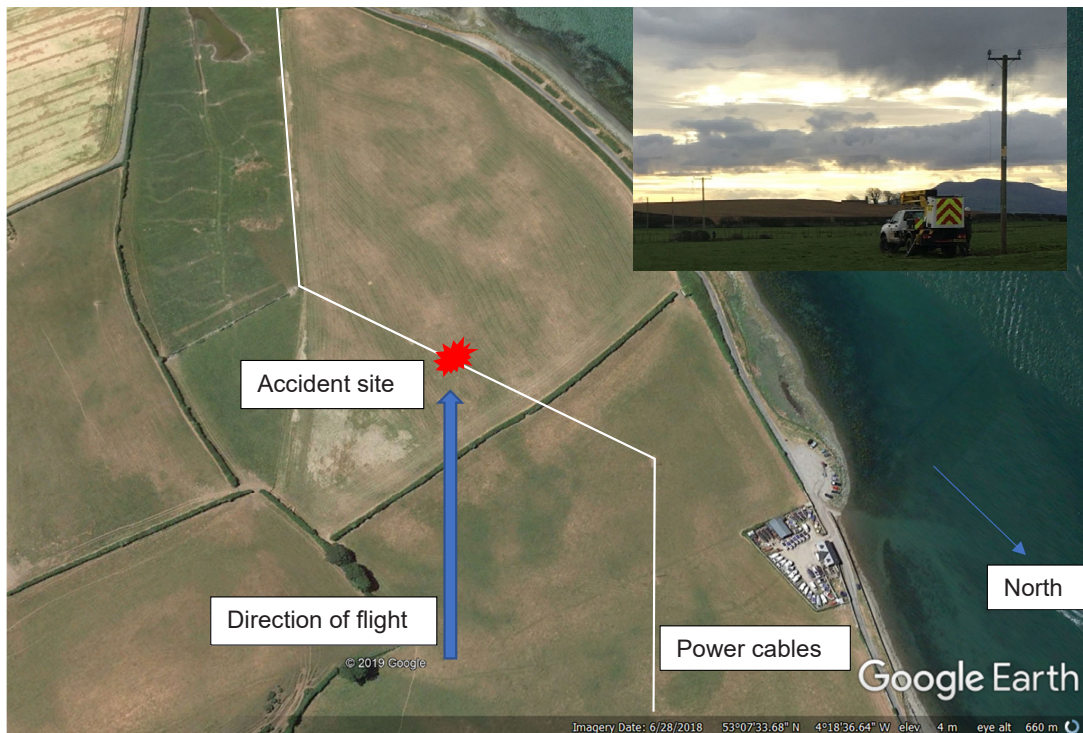


Figure 1
Accident site location

Carburettor icing

Carburettor (carb) icing is caused by a combination of the sudden temperature drop due to fuel vaporisation and pressure reduction as the mixture passes through the carburettor venturi and past the throttle valve. If the temperature drop brings the air below its dew point, condensation results, and if the drop brings the mixture temperature below freezing, the condensed water will form ice on the internal surfaces of the carburettor. This ice gradually blocks the venturi, which upsets the fuel/air ratio causing a progressive, smooth loss of power and slowly 'strangles' the engine. Conventional float type carburettors are more prone to icing than pressure jet types.

Examination of the aircraft

The aircraft (Figure 2) was taken to a maintenance organisation where it was found that all the electronic systems had been damaged when the aircraft struck the power cables. The ignition system was replaced, the engine was tested and ran satisfactorily. The maintenance organisation suspected that the engine stopped due to carburettor icing.



Figure 2
Accident aircraft

The Rotax 912 engine fitted to G-CFKJ relied on hot engine coolant to warm the carburettor body to prevent ice forming. The radiator can be partially covered to ensure that the coolant is maintained at a temperature above 80°C. The maintenance organisation stated that approximately 75% of the radiator area would normally be covered during the winter months to achieve the required temperature; however, on G-CFKJ only 25% of the radiator was covered.

Conclusion

With the high level of humidity, it is probable that the engine stopped as a result of carburettor icing. The aircraft was fitted with a carburettor heating system, but with only 25% of the radiator covered the engine coolant may not have been hot enough to prevent ice from forming in the carburettor. The pilot selected what appeared to be a suitable field, but a combination of the condensation on his windshield and visor, from the high humidity, and the low winter sun meant that he did not see the electrical cables across the field.

BULLETIN CORRECTION

The aircraft registration was wrongly stated on two occasions in the penultimate paragraph of the report.

The online version of the report was amended on 11 June 2020.