Accident

Aircraft Type and Registration:	Ikarus C42 FB100 Bravo, G-MOOD
No & Type of Engines:	1 Rotax 912ULS piston engine
Year of Manufacture:	2015 (Serial no: 1509-7418)
Date & Time (UTC):	3 July 2025 at 1030 hrs
Location:	Field next to Wycombe Air Park, Buckinghamshire
Type of Flight:	Private
Persons on Board:	Crew - 1 Passengers - 1
Injuries:	Crew - 1 (Serious) Passengers - 1 (Serious)
Nature of Damage:	Aircraft destroyed
Commander's Licence:	National Private Pilot's Licence
Commander's Age:	61 years
Commander's Flying Experience:	898 hours (of which 800 were on type) Last 90 days - 135 hours Last 28 days - 8 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot and other AAIB enquiries

Synopsis

The aircraft suffered a total loss of power shortly after takeoff and collided with trees during an attempted forced landing, seriously injuring both occupants. The cause of the power loss could not be positively determined. The aircraft may have been supplied with incorrectly graded or contaminated fuel. To prevent reoccurrence, the operator has purchased a bowser now used to supply their aircraft with UL91 fuel.

History of the flight

The flight was intended as an introductory flight with a passenger who had no previous experience in light aircraft.

The pilot conducted a pre-flight inspection of the aircraft including a fuel dip and water check. The aircraft was started and power checks completed with nothing abnormal noted. Approximately 15 to 20 minutes after engine start, the takeoff was commenced from Runway 24 at Wycombe Air Park. The takeoff initially proceeded normally with no unusual sounds or vibration. The pilot reported that he switched off the fuel pump and retracted the flaps at 300 ft and reduced power slightly at 500 ft as was his normal practice. Shortly after this, at approximately 700 ft, the engine ran down smoothly and then stopped.

The pilot lowered the nose and reported to the airfield radio operator his intention to land in a field. He did not declare a MAYDAY. The pilot reported switching the fuel pump back on but did not attempt a restart or perform other drills. He reported his focus was to concentrate on the flying and maintaining airspeed. He considered that a landing straight ahead was not possible due to a line of trees and he chose a field to the right to aim for. The pilot was confident of a successful landing in the field but the aircraft collided with trees which pitched the aircraft nose towards the ground resulting in a steep nose-down impact (Figures 1 and 2).

A helicopter pilot witnessed the accident and landed in the field to assist the pilot and passenger with egress. Both were seriously injured.

Accident site

Figure 1
G-MOOD after the accident

Figure 2
Accident site location

Aircraft and fuel information

The aircraft was powered by a Rotax 912ULS four stroke engine. The engine manufacturer specified that the fuel used by the engine should have minimum values of 85 for Motor Octane Number (MON), 95 for Research Octane Number (RON), and 91 for Anti Knock Index (AKI)[1].

The aircraft had been fuelled that morning from a jerry can containing premium 'E5' unleaded petrol[2] (also referred to as motor gasolene or Mogas) that had been purchased from a local petrol station four days before the accident. The fuel containers were used only to refuel the flying school's C42 aircraft. The school did not record the volume of fuel used to refuel the aircraft, so the quantity of fuel that the aircraft received during this refuel could not be verified.

Aircraft and fuel examination

The aircraft was examined by the company normally responsible for its maintenance. No physical cause of the engine failure was identified.

After the accident the operator arranged for laboratory analysis of a sample of the fuel from the aircraft's tank. The AAIB was provided a copy of a report from the fuels laboratory which indicated that there was no contamination or water found in the sample, the ethanol content was <2%, but the RON was 87.1, significantly lower than that specified by the aircraft manufacturer.

After the initial fuel assessment, the operator reported that they took a further sample, believed to be from the fuel container the aircraft was refuelled from, and sent it to a different

Footnote

[1] Available at https://www.flyrotax.com/products/912-uls-s [accessed on 21 October 2025].
[2] E5 unleaded petrol, often sold as 'super unleaded', is a premium motor fuel for spark ignition engines that contains a maximum of 5% bioethanol and has a RON of between 97 and 99.

fuel laboratory for a more detailed analysis. The results of this assessment indicated that the fuel sample was equivalent to a light kerosene, diesel or jet fuel. The analysis further identified that the MON, of 74.2, would not be suitable for spark ignition engines. The required minimum MON for UL91 and 100LL are 91.0 and 99.6 respectively.

Shortly after this accident, another aircraft operated by the same flying school suffered engine problems during the initial part of the takeoff, but it landed on the runway remaining ahead with only minor damage. All the school's aircraft were examined and three were found to have a jelly-like substance in the carburettor bowls. These three aircraft had been fuelled with the same batch of fuel as G-MOOD.

Meteorology

Weather conditions were good with a light and variable wind, visibility 7 – 10 km and temperature of 24°C.

Other information

The Light Aircraft Association (LAA) provides information on the use of Mogas[3] including advice regarding storage, operating limitations and vapour lock. One operating limitation is '*unleaded Mogas fuel is restricted to operation with a fuel tank temperature not exceeding 20°C.*'

CAA Safety Sense Leaflet 28, '*Fuel Handling and Storage*'[4], also contains guidance to GA pilots on the safe storage of fuel and recommends measures to maintain the quality of fuel supplied to aircraft. The Safety Sense Leaflet also provides information associated with the keeping of records associated with storage and dispensing of fuel to aircraft.

The CAA's advice in the Skyway Code[5] regarding engine failure at low level is '*If a failure happens shortly after take-off, landing ahead is safer than attempting to turn back. Assess the area immediately in front of you and pick the place that is likely to cause the least damage*.'

Analysis

The cause of the engine failure was not positively determined although a mechanical failure of the engine was ruled out. The aircraft had been sufficiently refuelled to conduct the planned flight, so fuel exhaustion was also ruled out.

An assessment of the fuel within the fuel tank and within the fuel containers that the aircraft was refuelled from suggested that the fuel supplied to the engine may have been of a lower octane number than specified by the engine manufacturer and may have been contaminated

Footnote

[3] Light Aircraft Association (2023), TL 2.26 PROCEDURES FOR USE OF E5 UNLEADED AND E5 SUPER UNLEADED MOGAS, Issue 4 https://www.lightaircraftassociation.co.uk/infolibrary/12b2f27a-697b-4b04-9846-c01f3054cca9 [accessed on 24 December 2025].

[4] Available: https://www.caa.co.uk/publication/download/14496 [accessed on 3 March 2026]

[5] Civil Aviation Authority (2023) CAP1535 The Skyway Code, p140. Available at https://www.caa.co.uk/publication/download/16112 [accessed on 21 October 2025].

with a diesel, light kerosene or jet fuel. This would have prevented the fuel from igniting in the engine cylinders when the spark plugs were activated.

Another potential cause was vapour lock and there were some risk factors present for this including the use of Mogas and the high temperature on the day. Electric fuel pumps offer protection against vapour lock during takeoff and leaving the pump on until reaching a higher altitude will potentially give pilots a wider choice of landing sites should an engine fail when the pump is turned off and more time to decide on the best course of action. Nevertheless, the CAA's advice in the Skyway code regarding engine failure at low level is that landing ahead is safer than attempting to turn back to the airfield.

With limited options ahead due to woodland, the pilot of G-MOOD selected an appropriate field and correctly prioritised aircraft control during the emergency. This avoided a stall/spin scenario that may have had worse consequences.

Conclusion

The aircraft sustained a total loss off power shortly after takeoff. The pilot made the decision to attempt a forced landing in a field to his right, but struck a line of trees on the edge of the field he was attempting to land in. The aircraft struck the ground seriously injuring both occupants.

The cause of the power loss could not be positively determined, but it is possible that the fuel that had been supplied to the aircraft was not of the correct grade or quality to allow normal combustion within the engine. The source of the fuel quality issue was not determined.

Safety actions

Following this accident the operator purchased a bowser to supply its aircraft with UL91 fuel.