

ACCIDENT

Aircraft Type and Registration:	Colomban MC-30 Luciole, G-CIBJ	
No & Type of Engines:	1 Briggs And Stratton 0114-E1 piston engine	
Year of Manufacture:	2013 (Serial no: LAA 371-15002)	
Date & Time (UTC):	10 April 2019 at 1815 hrs	
Location:	Farm strip at Thankerton, South Lanarkshire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Destroyed	
Commander's Licence:	National Private Pilot's Licence	
Commander's Age:	83 years	
Commander's Flying Experience:	15,324 hours (of which 60 were on type) Last 90 days - 1 hour Last 28 days - 1 hour	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

After a local flight, the ground taxi route back to the hangar involved several tight turns and when full left rudder pedal was applied the cockpit filled with smoke. The pilot exited the aircraft without injury and the ensuing fire consumed the aircraft. It is suspected that the terminals of the starter solenoid were not insulated, and the rudder pedal created an electrical short circuit which damaged a fuel pipe and ignited the fuel. Several Safety Actions have been taken to prevent recurrence.

History of the flight

The pilot had returned to the farm strip in Thankerton, where the aircraft was based, after an uneventful local flight. After landing the pilot taxied the aircraft to the hangar. The route from the airstrip to the hangar involved several tight turns (Figure 1) and it was following a left turn, where the pilot applied full left rudder pedal, that he felt a restriction. Shortly afterwards the cockpit filled with smoke and the pilot quickly exited the aircraft. In his haste to exit he did not wait for the aircraft to come to a halt, turn off the fuel or turn off the ignition. The aircraft was destroyed by fire (Figure 2) but the pilot did not suffer any injuries.



Figure 1

Thankerton farm strip – taxi route and accident location



Figure 2

G-CIBJ shortly after the pilot had evacuated

Aircraft information

The Colombar Luciole is an ultra-lightweight single-seat aircraft, home built from plans and is powered by a V-twin four-stroke petrol engine. The construction is a mixture of wood, plywood, metal, foam and carbon reinforced plastic and has a maximum takeoff weight of 200 kg.

The compact cockpit footwell has the battery on the floor of the left side with the starter solenoid mounted forward on the engine bulkhead. The fuel tank is behind the instrument panel with the fuel supply pipes, associated electrical pump and filter routed along the right

side of the cockpit, going forward and through the engine bulkhead just beneath the starter solenoid. The rudder pedals are adjustable fore and aft on a moveable carriage to suit the pilot and are centralised using elastic cords (Figure 3). During the accident flight the rudder pedals were adjusted fully forward.

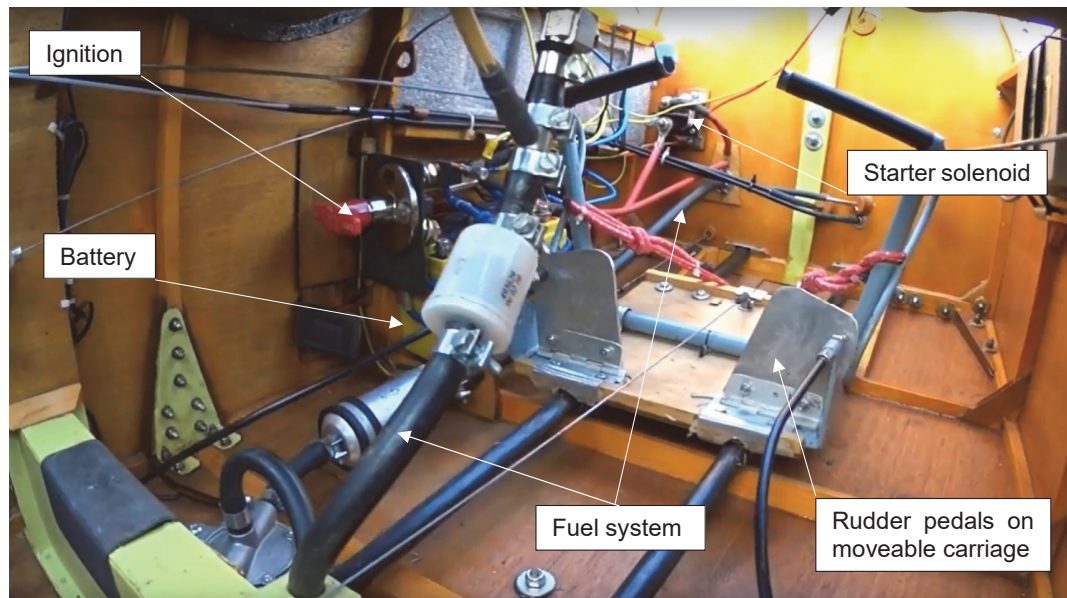


Figure 3

Cockpit interior (not G-CIBJ)

Analysis

During the taxi manoeuvres the pilot noted a restriction when he applied full left rudder pedal and shortly afterwards smoke was seen in the cockpit. It is probable that, as the rudder pedal carriage was in the fully forward position, the metal pedal contacted the exposed terminals of the starter solenoid. The solenoid is connected directly to the battery and the metal rudder pedal created a short circuit to earth, resulting in rapid discharging of the battery and overheating of the electrical system. Evidence was found of local heat damage to the engine bulkhead around the starter solenoid. This overheating may have caused the fuel pipe to melt, with a spark igniting the fuel and the aircraft was then consumed by the fire.

The plans for the aircraft state that the terminals of the solenoid should be “*perfectly isolated*”. The Light Aircraft Association (LAA) has examined all other Luciole aircraft registered in the UK and confirmed that all the terminals are insulated (Figure 4). It is suspected that only G-CIBJ did not have this insulation and awareness of this issue has been raised by the LAA in their June 2019 “*Safety Spot*” publication and Technical Leaflet TL3.26. The LAA intends to mandate a change to the specification of the fuel pipe in the cockpit to one that is more heat resistant and will require all UK owners to modify their aircraft to this new fuel pipe specification.

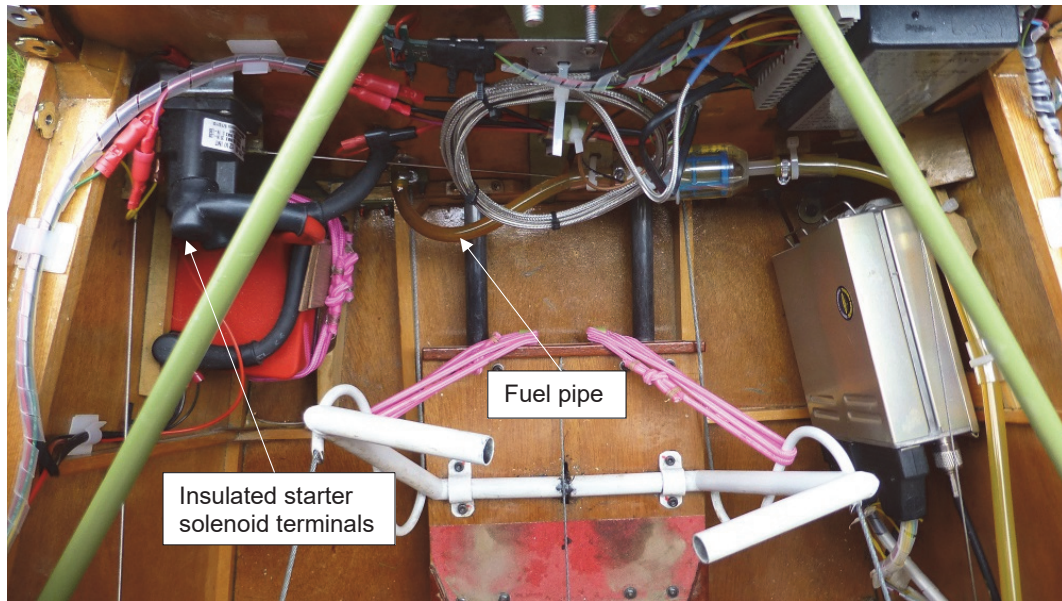


Figure 3

Cockpit interior (not G-CIBJ)

The LAA will mandate that all UK-registered Colomban Luciole aircraft be modified to the higher heat resistant fuel pipe specification.

Conclusion

The source of the fire which consumed the aircraft was the electrical system, which had overheated due to a short circuit. The short circuit was made by the metal rudder pedal contacting the exposed terminals of the starter solenoid mounted to the engine bulkhead. The rudder pedals had been adjusted to the fully forward position and due to the pedal inputs required for the taxiing manoeuvres, the left pedal had contacted the exposed terminal. The plans for the aircraft required the terminals to be insulated; however, the insulation had not been fitted to G-CIBJ. The LAA will mandate that the fuel pipes on all UK-registered Luciole aircraft be modified to a higher heat resistant specification.

Safety actions/Recommendations

The LAA has recommended that all UK-registered Colomban Luciole aircraft be modified to the higher heat-resistant fuel pipe specification.