Piper L18C (Modified) Super Cub, G-BPJH

AAIB Bulletin No: 12/2002	**Ref: EW/G2002/08/17**	**Category: 1.3**
Aircraft Type and Registration:	Piper L18C (Modified) Super Cub, G-BPJH	
No & Type of Engines:	1 Continental Motors Corp C90-14F piston engine	
Year of Manufacture:	1952	
Date & Time (UTC):	20 August 2002 at 1859 hrs	
Location:	Maze Racecourse, Lisburn, Co Down	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Damage to cabin roof, wing spar and engine firewall, bent propeller	
Commander's Licence:	Airline Transport Pilots Licence with Instructor Rating	
Commander's Age:	50 years	
Commander's Flying Experience:	12,000 hours (of which 500 were on type)	
	Last 90 days - 180 hours	
	Last 28 days - 40 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot and additional enquiries by the AAIB	

Circumstances

It was planned to conduct a ferry flight from a private airstrip at Draperstown, Londonderry, to Newtownards airfield, where the aircraft was to undergo maintenance prior to the renewal of its Permit-to-Fly. Because the aircraft had flown very little during the preceding months, it was decided to drain the fuel tanks, and replenish them with 50 litres of Avgas, which was supplied by the engineer who was to conduct the maintenance.

Approximately 30 minutes into the flight, whilst cruising at 1,800 feet with a power setting of approximately 2,300 rpm, the engine began to run roughly and then stopped. The pilot carried out a

forced landing on the Maze Racecourse. In order to avoid a number of people who were walking on the course, the pilot applied left brake. This caused the aircraft to deviate left and resulted in the left wing tip contacting a fence. The aircraft subsequently slewed through the fence and into a ditch at the side of the course, tipping onto its nose in the process. The pilot was uninjured and exited the aircraft through the normal door.

Subsequent examination of the aircraft

During the recovery of the aircraft, some fuel from the tank, which is located in the left wing root, was lost overboard, with additional unquantified amounts being poured into jerry cans. This, in conjunction with an assessment of the likely fuel burn during the 30 minute flight, was considered to provide sufficient evidence that the engine failure was not the result of a lack of fuel on board the aircraft.

The subsequent investigation included drainage of the fuel line to the engine and a check of the carburettor. No evidence was found of any debris that could have caused a blockage. The carburettor air box was distorted as a result of the accident. However, the carburettor heat control linkage was found to be connected normally.

A replacement propeller was fitted and a temporary header tank containing fuel was jury-rigged to the aircraft, following which the engine started at the first attempt. It proceeded to run normally, and a check of the magnetos revealed no faults.

Information from the Meteorological Office indicated that the surface temperature and dew point at the time of the accident were 15.7°C and 11.3°C respectively, giving a relative humidity of 75%. Reference to a carburettor icing probability chart indicated that these conditions produced a serious risk of icing at descent power. The conditions were just outside the area of the chart that represented a serious risk of icing at any power setting.

Despite this, the pilot was adamant that the engine failure was not due to carburettor icing, as he had experienced this on other aircraft and was familiar with the symptoms. Furthermore, he stated that he had applied carburettor heat only a few minutes prior to the engine failure.

Comment

In the absence of any technical defect being identified with the engine, ignition or fuel systems, then the only likely explanations for the engine failure would be a temporary interruption of the fuel supply or the presence of carburettor icing. The available evidence did not allow either possibility to be excluded.