

ACCIDENT

Aircraft Type and Registration:	Europa, G-FLRT	
No & Type of Engines:	1 Rotax 912 ULS piston engine	
Year of Manufacture:	2005	
Date & Time (UTC):	12 November 2005 at 1020 hrs	
Location:	Huddersfield (Crosland Moor) Airfield, West Yorkshire	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - None
Injuries:	Crew - None	Passengers - N/A
Nature of Damage:	Aircraft damaged beyond economic repair	
Commander's Licence:	JAR Private Pilot's Licence	
Commander's Age:	46 years	
Commander's Flying Experience:	266 hours (of which 220 were on type) Last 90 days - 5 hours Last 28 days - 5 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

The engine lost power shortly after takeoff, following engine ground runs to investigate rough running on the previous flight. During the forced landing, the aircraft skidded into a dry stone wall and was seriously damaged. Examination of the aircraft some weeks after the accident revealed the presence of water in the fuel system.

History of the flight

The engine began to run roughly shortly after takeoff so the pilot returned to the airfield immediately, landing on the reciprocal runway.

After checking the aircraft and conducting four engine runs, without finding anything untoward, the pilot asked his passenger to wait while he flew a solo circuit to ensure that there were no problems. The Runway in use at the time was R/W 25, the surface of which consists of 550 m of asphalt followed by 250 m of grass. However, immediately after takeoff, at a height of approximately 30 ft, the engine ran roughly once again and lost power. The pilot elected to land straight ahead and attempted to cushion the landing by applying power; the engine did not respond. As a result, the landing was somewhat heavy. The engine then picked up, as the pilot had not retarded the throttle lever, and some deceleration time was lost as he moved his hand from the brake lever in

order to close the throttle¹. In the process, he allowed the aircraft to veer off the left side of the runway, and collide with a dry stone wall at an angle of 45°. The pilot was uninjured and left the aircraft via the normal exit.

Examination of the aircraft

As a result of delays over insurance and salvage issues, it was several weeks before the aircraft owners conducted a comprehensive investigation of the aircraft. The fuel tank was emptied by disconnecting the fuel lines upstream of the carburettors and operating the electric fuel pump, which established that the pump was serviceable². Small quantities of water were found in the carburettor bowls. The engine was subsequently inspected by a Rotax agent, who reported that considerable quantities of water were present in the undamaged engine-driven fuel pump and associated fuel lines. Some internal corrosion had occurred in this pump and the carburettors, indicating that water had been present for some time; moreover, there appeared to be no possibility of water having entered the fuel system following the accident.

The fuel tank in the Europa is located in the lower fuselage aft of the seats and is saddle-shaped, with left

and right lobes. The normal fuel off-take is from the front of the left lobe, via a three-way selector valve, using the electric pump, with the right lobe contents being used as a reserve. The design is such that with the aircraft in its parked attitude, any water would gravitate to the lowest point at the rear of the tank. Thus, as the tail rises when the aircraft lifts off, it is possible that water could move towards the front of the tank and into the fuel outlet. The aircraft was equipped with two fuel drains on the fuselage underside, which are designed such that they drain fuel from the lowest points of the tank, ie at the rear of the tank lobes. The pilot stated that, on the day of the accident, he had operated the drains for a few seconds but did not drain any fuel into a transparent container to check for water.

The aircraft was usually parked outside; however, it was fitted with a cockpit cover that also covered the fuel filler cap, the seal of which was reported to be in good condition. The engine was usually run on motor fuel, with refuelling conducted by means of steel jerry cans that were kept in the pilot's car. The pilot was at a loss to explain how the water came to be present in the aircraft.

Footnotes

¹ On the Europa, the brake and throttle levers are adjacent to one another, with both being operated by the pilot's right hand; it is thus effectively impossible to operate both simultaneously.

² Some early Europa electric fuel pumps were considered to have insufficient power and were required to be replaced with more powerful units; ref Europa Service Bulletin No 4, dated November 1999. G-FLRT had been so modified.