

ACCIDENT

Aircraft Type and Registration:	Reims Cessna F172F Skyhawk, G-ASWL	
No & Type of Engines:	1 Continental Motors Corp O-300-D piston engine	
Year of Manufacture:	1964	
Date & Time (UTC):	3 March 2010 at 1640 hrs	
Location:	About 5 nm north of Swansea Airport	
Type of Flight:	Training	
Persons on Board:	Crew - 2	Passengers - None
Injuries:	Crew - 1 (Minor)	Passengers - N/A
Nature of Damage:	Extensive	
Commander's Licence:	Commercial Pilot's Licence	
Commander's Age:	26 years	
Commander's Flying Experience:	421 hours (of which 29 were on type) Last 90 days - 54 hours Last 28 days - 27 hours	
Information Source:	Aircraft Accident Report Forms submitted by the flying instructor and student pilot, and further enquiries by AAIB	

Synopsis

The accident occurred while the aircraft was engaged on an instructional flight from Manchester Barton Airport to Swansea Airport. As it neared Swansea, the aircraft experienced a loss of power and a forced landing was made in a field. When the nosewheel dug into the soft ground on landing, the aircraft tipped forward and inverted. The instructor, who was not wearing his full safety harness, sustained facial injuries.

History of the flight

An aircraft pre-flight inspection was completed at Swansea at 0745 hrs on the day of the accident. Fuel quantity was physically checked and found to be just

above 32 US gallons of useable fuel (about 80% of maximum capacity). The aircraft departed Swansea at 0810 and arrived at Barton at 0925 hrs without reported incident.

When the aircraft departed Barton at 1515 hrs, for the return flight, the fuel tanks were reportedly showing more than half full. When the aircraft was about 8 nm north of Swansea, a cruise descent was initiated from about 4,000 ft, with a mid-range power setting and carburettor heat not selected. As the aircraft passed about 2,000 ft, engine rpm suddenly dropped to 1,500. The instructor took control and carried out immediate actions, and the

rpm increased briefly to about 1,600. The student applied carburettor heat. All other indications were normal, and the instructor reported that the fuel level was at less than a quarter full in each tank. Alternate selection of left then right fuel tanks had no effect.

The instructor transmitted a MAYDAY call and prepared to land at a nearby farm strip. Passing 800 ft, with rpm still at 1,500, it became apparent that the aircraft would not be able to reach the intended strip. The instructor selected the only flat field where an into-wind landing could be carried out and made an approach to it. Touchdown reportedly occurred on the main wheels at 55 kt and the instructor attempted to delay nosewheel touchdown with full aft elevator. However, when the nosewheel lowered, it dug into the soft ground and the aircraft overturned.

The aircraft was fitted with lap belts and diagonal shoulder straps. However, the instructor was not wearing the diagonal strap. Consequently, he suffered facial injuries in the accident, while his student, who was using the full restraint, was uninjured. The accident attracted a full response from the emergency services, and the occupants were treated by paramedics of the air ambulance helicopter.

In a separate report, the student pilot, who had 11 hours flight time, described drawing his instructor's attention to the left tank fuel gauge before departing from Barton. This was reading below half full, and the instructor pointed out that the right tank gauge was reading slightly over half full. Once airborne, as the aircraft approached Swansea but before descent was initiated, the student saw that both fuel gauges were "in the red". He pointed this out to his instructor, who reportedly did not respond. The instructor stated that he did not recall this comment.

After checking planned fuel consumption and considering the symptoms, the instructor concluded in his report that the power loss had been due to carburettor icing.

Meteorological information

At 1650 hrs, Swansea Airport reported a temperature of 6°C, dew point -1°C and clear skies. Using a chart produced by the UK CAA to predict the likelihood of carburettor icing, these conditions result in a moderate to serious risk.

Information from the aircraft recovery team

An aviation surveyor attended the accident site as part of the recovery process. He reported that the aircraft had travelled a short distance before tipping upside down, evidenced by short, deep ruts left by its main wheels and the single rut from its nosewheel. The aircraft sustained substantial damage and distortion to both mainplanes. The left wingtip appeared to have struck the ground, resulting in severe disruption of the left hand lift strut. There was further damage and distortion to the fuselage.

Both fuel tanks appeared intact, with no obvious signs of leakage or smell of fuel. When the aircraft was cleared from the site, the vegetation beneath showed no signs of fuel contamination. When the aircraft was disassembled for transport, approximately five litres of fuel were found remaining in the left tank and approximately one litre in the right tank. The fuel selector was selected to the right tank feed.

In a further report, the instructor observed that the reported fuel quantity at recovery was less than the manufacturer's quoted minimum useable fuel, suggesting that some fuel leakage may have occurred.