

ACCIDENT

Aircraft Type and Registration:	Zenair CH 601 XL (P) Zodiac, 54-ASJ
No & Type of Engines:	One Rotax 912 ULSFR piston engine
Year of Manufacture:	2014 (Serial no 6-6702)
Date & Time (UTC):	22 August 2015 at 0820 hrs
Location:	Near Sandown Airport, Isle of Wight
Type of Flight:	Private
Persons on Board:	Crew - 1 Passengers - None
Injuries:	Crew - 1 (Serious) Passengers - N/A
Nature of Damage:	Aircraft destroyed
Commander's Licence:	ULM Pilot Certificate (France)
Commander's Age:	60 years
Commander's Flying Experience:	670 hours (of which 64 were on type) Last 90 days - 40 hours Last 28 days - 15 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot

Synopsis

The pilot took off from Sandown Airport and the aircraft immediately started an unintended turn to the left. The pilot applied right rudder and right aileron in an effort to counter the turn, but the inputs appeared ineffective. A shallow climbing left turn continued until the aircraft stalled and entered an incipient spin to the left. The aircraft crashed into a grass field and caught fire but the pilot survived, sustaining serious injuries.

History of the flight

On 19 August 2015, the pilot contacted Sandown Airport by e-mail and advised that he would like to fly in on Friday, 21 August, with a planned departure on Sunday, 23 August. That weekend, 22 to 23 August 2015, Sandown Airport was holding an *'End of the War 70th Celebration Weekend'* event.

Having arrived at Sandown on 21 August, the pilot's plans then appeared to change, as he departed the next morning, 22 August, for a return flight to France. Grass Runway 05 was in use and the weather conditions were good, with the airfield windsock indicating that the surface wind was from a north-easterly direction at 5 kt to 10 kt. The 0820 hrs METAR at Southampton Airport, 19 nm north-west, reported a surface wind from 060° at 5 kt, CAVOK and a temperature of 18°C.

The pilot performed his pre-flight inspection and started the engine. Once the pre-departure checks were complete, he taxied to Runway 05 and commenced a rolling takeoff, with approximately half flap set, as estimated from a photograph taken by a witness. After a ground roll of about 350 m, the aircraft (using the callsign F-JVVV) lifted into the air and immediately started to turn left. It also pitched up and momentarily reached a steep nose-high attitude, before adjusting to a more normal climb attitude. The pilot, who had not intended to turn left, reported that he reduced power at a height of about 30 ft to try and keep the aircraft tracking straight ahead. Once the track appeared to straighten, he reapplied power. The flight continued with the aircraft in a nose-up attitude and in a banked skidding turn to the left. It then straightened momentarily, lost height, and appeared to enter a stall and incipient spin to the left.

The aircraft, which was airborne for a total of 20 seconds, crashed into a grass field 300 m to the north of the Runway 05 threshold and there was a post-crash fire. The pilot did not remember the accident but recalled hearing the voices of the air traffic controller, presumably on the radio, and of people approaching the aircraft after the impact. He was helped out of the aircraft and given emergency medical assistance before being transferred to a local hospital.

Witness information

There were a number of eyewitnesses to the accident and there was also a video recording of the entire flight, together with still photographs taken from alongside the runway. The displacement of the flight control surfaces could be seen in both the photographs and the video footage.

At the start of the takeoff roll, the ailerons were in the neutral position and approximately half flap was deployed. The aircraft appeared to accelerate normally along the runway and directional control was maintained. It bounced into the air briefly once or twice, before lifting off after a ground roll of approximately 350 m. As it lifted off, it immediately started to bank left. Right aileron and right rudder control deflections could be seen, but the left turn continued. The initial climb to a height of about 80 ft was steep, then the climb rate reduced somewhat, although a nose-up pitch attitude was maintained throughout the flight. Right rudder and right aileron inputs were apparent throughout the remainder of the flight but the aircraft continued turning to the left, apparently flying slowly. As the heading reached almost the reciprocal of the original runway heading, there was a marked loss of height, the left wing dropped and the aircraft entered an incipient spin.

Pilot information

The pilot had flown ultralight aircraft for more than 20 years. His recollection of the accident was incomplete but he considered that the cause of the accident may have been a jammed aileron control.

Aircraft information

The pilot had built the aircraft himself from a partial kit supplied by the manufacturer. It was completed and first flown in July 2014 and, at the time of the accident, had flown

64 hours. The documentation for the aircraft indicated that the maximum engine power was 59 kW (80 hp). However, the engine's ULSFR designation suggests that it was a 75 kW (100 hp) engine. Manufacturer's data indicates that, at maximum takeoff weight and standard atmospheric conditions, the ground roll during takeoff would be 168 m with a Rotax 100 hp engine installed.

The aircraft has nosewheel steering, an all flying vertical tail (rudder) and conventional ailerons which are attached to the wing with a 'hingeless' system. The flaps are electrically operated and their extension is judged visually from their position relative to the ailerons. A camera was mounted on the left wing.

Aerodrome information

Sandown Airport is unlicensed. The runway, which has a grass surface and is orientated 05/23, is 884 m in length and 40 m wide. Runway 05 has a slight downslope. There are hangars located to the left of the runway and beyond them a line of trees.

Noise abatement procedures require departing traffic to climb straight ahead for at least 1 nm, before commencing a turn.

Analysis

There was nothing unusual observed about the takeoff ground roll and, as the aircraft lifted off, it immediately banked left and started turning to the left. This turn was not intended and the pilot attempted to correct with right rudder and aileron control inputs. However, these were not effective, so, at a height of about 30 ft, he reduced power in an effort to regain directional control. This appeared to be partially effective as the bank angle was reduced. However, there were trees ahead, so he reapplied full power.

There could be a number of possible reasons why the aircraft made an unintended turn to the left, as it lifted off the ground. However, there was insufficient evidence to identify any particular factor. Once the aircraft had turned away from the runway track, the pilot's options were limited by the obstacles in his path. The nose-high attitude probably led to a reduction in airspeed, thereby reducing the effectiveness of the flight controls and ultimately leading to a stall.

Conclusion

During departure, the aircraft immediately started an unintended turn to the left after it had lifted off. The pilot applied right rudder and right aileron in an effort to counter the turn but the inputs appeared ineffective. A shallow climbing left turn continued towards a downwind direction until the aircraft stalled and entered an incipient spin to the left. The aircraft crashed into a grass field and caught fire but the pilot survived, sustaining serious injuries.

There was insufficient evidence to establish why the aircraft had behaved as it did and why the accident occurred.