

Accident

Aircraft Type and Registration:	Ikarus C42 FB80, G-CFHP	
No & Type of Engines:	1 Rotax 912-UL piston engine	
Year of Manufacture:	2008 (Serial no: 0805-6972)	
Date & Time (UTC):	13 September 2020 at 0900 hrs	
Location:	Porthtowan, Cornwall	
Type of Flight:	Training	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - None	Passengers - None
Nature of Damage:	Nose landing gear leg, both wings and engine cowling damaged	
Commander's Licence:	Private Pilot's Licence	
Commander's Age:	71 years	
Commander's Flying Experience:	6,516 hours (of which 2,916 were on type) Last 90 days - 15 hours Last 28 days - 5 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

Synopsis

During the latter stages of a practice forced landing (PFL), the right landing gear wheel spat struck the perimeter fence of the airstrip. The aircraft turned sharply right and struck the ground, causing extensive damage. Both those on board were uninjured and were able to exit the aircraft unaided. Safety action was taken to stress the importance of going around should it appear that a PFL would be unsuccessful.

History of the flight

The commander was a flight instructor and examiner and was conducting a test to renew the lapsed licence of the student. After a successful upper air exercise, the aircraft was returning to Perranporth Airfield. A parachute jump was scheduled at Perranporth and therefore the return to the airfield was delayed. The commander decided that a demonstration of the 'Beat Method' for a PFL would be of value. The 'Beat Method' involves flying a figure of eight pattern downwind of the landing site until sufficient height is lost to position the aircraft on a normal glide approach.

The commander chose to use a private airstrip at Porthtowan for the PFL demonstration and the intention was to fly the procedure to a go-around. The procedure was commenced from 1,500 ft agl, approximately one third of a nautical mile from the downwind threshold for Runway 21 at Porthtowan. The commander considered the aircraft was high for the range

remaining to the airstrip and so immediately lowered full flap to steepen the descent. He made a left turn, followed by a right turn and then another left turn onto what he described as a right base leg for the airstrip. The commander stated that “the steepening of the glide angle at this point subconsciously caused my focus to shift from a point one third into the runway (the initial aiming point) to an area much closer to the downwind threshold.” The base leg track was into the wind, which was from approximately 200° at 5 kt. From this track a turn of only 20° to the right was required to align with the runway.

A set of domestic power cables runs past the threshold of Runway 22 (Figure 1) and these were at right angles to the aircraft’s into-wind track.



Figure 1

Power cables from approximately where the aircraft came to rest

The commander’s intent was to turn onto the runway track after crossing the cables. The commander stated: “We cleared the cables easily but, being a little lower than I had intended, delayed the right turn until completely clear of them, which meant the aircraft ended up a few metres to the south of the runway requiring a further right turn to align with the runway.” The commander estimated that the aircraft crossed the cables between 30 and 40 ft agl. It was his opinion that the wind was a little stronger than he had anticipated and so the aircraft was not gliding as far as he originally expected. Therefore, the aircraft crossed the cables lower than intended. The commander stated that by this stage of flight his focus was so intense that he felt unaware of the other person in the cockpit.

After clearing the wires, the commander made the right turn towards the airstrip using 30 to 35° angle of bank. During the turn the right landing gear struck a fence, approximately 5 ft tall, at the edge of the airstrip. The fence arrested the aircraft’s flight, turned it to the

right through 90° and caused it to strike the ground heavily, damaging both wings, the engine cowling and the nose landing gear. Neither occupant was injured, and both were able to exit the aircraft unaided. The approximate aircraft track and aircraft final position is shown at Figure 2.

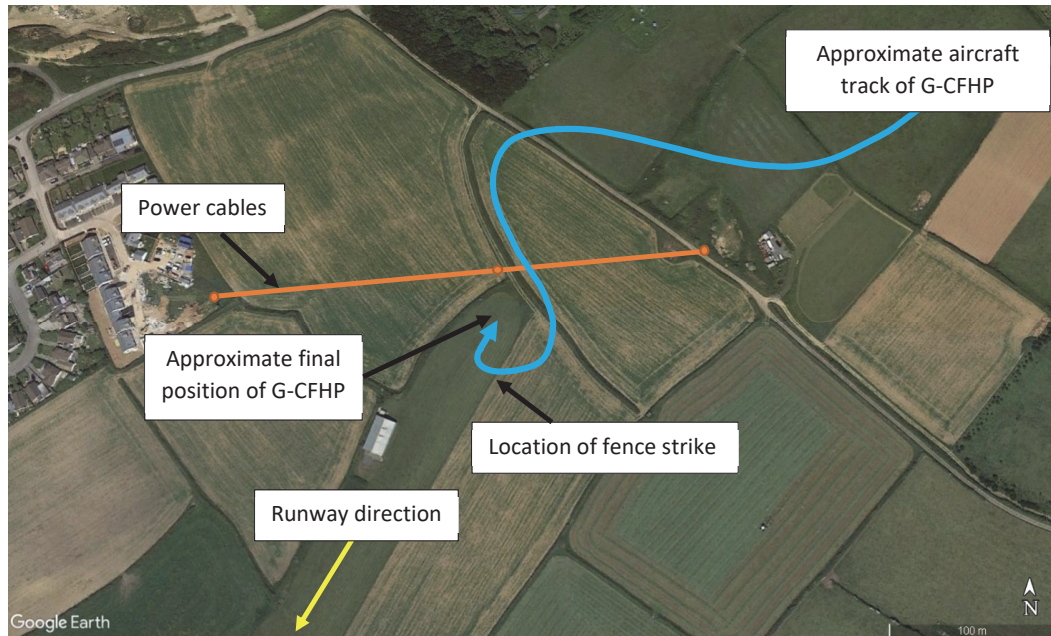


Figure 2
Approximate aircraft track



Figure3
View along Runway 03 showing boundary fence

Airfield information

Porthtowan is a private grass airstrip in Cornwall. It has one runway, Runway 03/21, which is approximately 500 m long.

Personnel information

The commander was familiar with the airstrip at Porthtowan and had operated there many times. He was aware of the cables that cross close to the runway 22 threshold. Once established on the base leg track the commander could clearly see the cables.

During the demonstration the student became aware that the flight path was unusual. He believed that had he been in control and in the same situation the instructor would have directed a go-around. However, the student had confidence in the commander and felt it was inappropriate to call for a go-around himself.

Cognitive tunnelling

Cognitive tunnelling is an inattention blindness phenomenon in which the observer's attention is focused on specific items or tasks rather than on the present environment. For example, while driving, a driver focused on the speedometer and not on the road may be suffering from cognitive tunnelling.

The commander considered that he had experienced cognitive tunnelling during this event.

Organisational information

The British Microlight Aircraft Association (BMAA) Microlight Instructors and Examiners Guide gives the following advice for the conduct of forced landings:

'The following notes are applicable to all forced landing patterns without power:

- *The initial aiming point should be positioned between approximately one half and one third of the way into the chosen landing site.*
- *The initial aiming point should be kept in view throughout the procedure.*
- *The angle of bank should not normally exceed 30° in any manoeuvres completed during the procedure.*
- *The aircraft should normally be established on final approach at a similar height to that used for a glide approach in the normal airfield circuit pattern.*
- *Once established on the final approach and the initial aiming point is assured the actual touch down point should be brought towards the threshold by the appropriate technique.'*

A BMAA Examiner was asked for an opinion on the height at which an aircraft should be established on a final approach when gliding. They considered that an aircraft should be wings level on a final approach by 200 ft agl and that it would be unusual to manoeuvre

below that height. The BMAA Instructors and Examiners Guide does not give specific heights by which pilots should be established on final approach or by which they should initiate a go-around.

Analysis

At the start of the demonstration the commander considered that the aircraft was high for the distance to the airstrip and he therefore selected full flap. The commander stated that the '*appropriate technique*' referred to in the BMAA Instructors and Examiners Guide to bring the touchdown point towards the threshold was principally use of flap. The early selection of full flap steepened the glide angle significantly and removed the option of using flap to modify the flight path on final approach.

Once established on the into-wind track the commander began to focus on the power cables. He was aware that the flight path was lower than planned but was confident that the aircraft would clear the cables by a safe margin. In retrospect he was aware that either an earlier turn to final and a landing approximately 200 m into the runway or a go-around at any point would have avoided the accident. However, he considered that he became so focused on avoiding the cables that he experienced cognitive tunnelling and ceased to consider the option to go-around.

As the aircraft cleared the cables it was already at a low height. The commander felt that the margin was safe, and his focus moved to landing near the threshold. Delaying the turn to remain wings level while crossing the cables had positioned the aircraft left of the intended approach track. Therefore, a turn through a greater number of degrees than intended was required to reach the airstrip. This turn was carried out with approximately 35° angle of bank at a height of less than 40 ft agl. This manoeuvre would have increased the rate of descent and the commander's workload. The commander believed the aircraft would clear the fence around the airstrip but the right landing gear struck the fence and the aircraft landed heavily.

Conclusion

The commander's attention became focused on the power cables to the extent that he probably experienced a cognitive tunnelling effect. Therefore, he did not recognise the inappropriate nature of his flight path and did not take the corrective action of initiating a go-around. During the turn to final at low height the aircraft struck a fence, arresting its flight and causing it to land heavily.

Safety actions

The BMAA will review the advice to instructors regarding the conduct of PFLs, with particular emphasis on early initiation of a go-around if the plan is not working as expected.