FINAL REPORT

AAIU Synoptic Report No: 2010-010
State File No: IRL00909087
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In accordance with the provisions of SI 205 of 1997, the Chief Inspector of Air Accidents, on 16/09/2009, appointed Mr. Thomas Moloney as the Investigator-in-Charge to carry out an Investigation into this Accident and prepare a Report. The sole purpose of this Investigation is the prevention of aviation Accidents and Incidents. It is not the purpose of the Investigation to apportion blame or liability.

Aircraft Type and Registration:	Eiriavion PIK-20D (Glider), G-EDMV	
No. and Type of Engines:	N/A	
Aircraft Serial Number:	20526	
Year of Manufacture:	1977	
Date and Time (UTC):	15 July 2009 @ 14.00 hrs	
Location:	Field near Durrow, Co. Laois, Ireland	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - Nil
Injuries:	Crew - Nil	Passengers - Nil
Nature of Damage:	Significant	
Commander's Licence:	Silver 'C' Gliding Certificate issued by the British Gliding Association (BGA)	
Commander's Details:	Male, aged 56 years	
Commander's Flying Experience:	815 hours, of which 47 were on type	
Notification Source:	Dublin Gliding Club	
Information Source:	AAIU Pilot Report Form submitted by the Pilot	

SYNOPSIS

The glider was carrying out a closed-circuit cross-country flight from Birr Airfield, Co. Offaly (EIBR). Due to deterioration in the weather conditions, the Pilot decided to make an unscheduled out-landing[1] in a field near Durrow, Co. Laois. The glider landed on a down-slope, and the Pilot ground looped to the right to avoid impacting the field boundary fence and hedge. The fuselage sustained significant damage during the ground loop manoeuvre.

NOTIFICATION

The Chief Flying Instructor of the Dublin Gliding Club notified the AAIU of the accident on the 16 September 2009, immediately after he had received details of the occurrence.

[1] An out-landing is an off airfield landing

1. FACTUAL INFORMATION

1.1 History of the Flight

The glider, which was normally based in Northern Ireland, was launched from EIBR with the intention of completing a closed-circuit cross-country flight, returning to EIBR via Durrow, Co. Laois. The Pilot reported that during the flight the weather deteriorated, with rain showers and squalls developing and cloud increasing with almost complete cloud cover at 2,000 ft. Accordingly, he decided to land in a field north of his turning point at Durrow. He selected a large grass field with a new road under construction beside the field. He approached the field over the new road on an approximate heading of 100ºM. He did not notice that the field had a down-slope of approximately 1:20 until after he was committed to the landing. After touching down at an estimated speed of 55 kts, the Pilot ground looped the glider to stop it from going into a fence and hedge at the far end of the field. The Pilot, who was uninjured, candidly stated in his Report Form that *"The slope caught me out"*. After the accident, the Pilot returned to Northern Ireland with the glider. The AAIU did not learn of the accident until the 16 September 2009, when the Chief Flying Instructor of the Dublin Gliding Club informed the AAIU. The gliding activity at EIBR on 15 July 2009 had been organised by the Dublin Gliding Club.

1.2 Damage to Aircraft

The composite fuselage was cracked along its spine at both the top and bottom joins between its two halves.

1.3 Description of Aircraft

1.3.1 General

The PIK-20D is a single-seat sailplane manufactured in Finland by Eiriavion Oy. It is classified as a 15 metre Utility Category glider. The first prototype of the PIK-20 family flew in 1973. The fuselage consists of a glass-fibre/epoxy monocoque structure stiffened by eight ribs and by the cockpit, with a double bottom and two carbon-fibre beams. The wings consist of a cantilever shoulder-wing monoplane, with a glass-fibre/epoxy/PVC foam sandwich structure. The spars are carbon-fibre reinforced epoxy. Schempp-Hirth airbrakes are fitted as standard. The aircraft has a cantilever T-tail, of similar construction to the wings. There is a fixed-incidence tailplane with a one-piece elevator and conventional rudder. The landing gear consists of a manually retractable mono-wheel equipped with a drum brake, and a small tail-wheel located under the vertical stabiliser in an enclosed housing. The whole trailing-edge flap (flaperon) is utilised as both aileron and flap control. The aileron neutral position travels with the flap setting from 12º up to 16º down. The pilot is accommodated in a single semi-reclining seat under a one-piece sideways opening transparent moulded canopy. There is provision for 140 litres of water ballast.

1.3.2 Technical Information

Empty Weight:	225 kg approximately
Maximum Weight:	450 kg including water ballast
Maximum Speed (IAS[2]):	158 kts

[2] IAS: Indicated Airspeed

Max IAS, Rough Air at Max Weight:	130 kts
Stall Speed in landing configuration at a weight of 300 kg:	37 kts
Approach Speed:	49 kts approximately

1.4 Weather

The Pilot received a weather forecast at EIBR at 10.00 hrs on the day of the accident. The forecast and actual weather conditions were as follows:

Weather	Forecast	Actual
Wind (Direction/Speed):	SSE 10 kts	SSE 10 kts
Visibility:	+10 km, Good	Good below 2,000 ft
Significant Weather:	Showers	Squalls
Cloud:	Cumulus	7/8 Cover at 2,000 ft
Temperature/Dew Point:	18ºC / 12ºC	18ºC / 12ºC

1.5 Pilot Information

The Pilot, who is resident in Northern Ireland, was a co-owner of G-EDMV. He had accumulated a total flying time of 815 hrs on gliders, of which 602 hrs were as Pilot-in-Command and 47 hrs were on the PIK-20D. He held a valid Silver 'C' Gliding Certificate issued by the BGA. This qualification requires flights with a height gain of at least 1,000 m; a straight course of at least 50 km; and with a minimum duration of 5 hrs. He also held an Assistant Instructor rating and had accumulated 414 hrs as a gliding instructor.

2. ANALYSIS

The Pilot had received a weather forecast for cumulus clouds and shower activity on the day of his intended cross-country flight. Cumulus clouds are associated with thermals, the rising columns of air that are used by glider pilots to gain height and thus to stay aloft on an extended cross-country flight. Cumulus clouds often form at the top of thermals, thus marking where thermals are. However, during the flight the actual weather conditions deteriorated beyond what he had anticipated, with squalls developing and almost full cloud cover being present at 2,000 ft. As the squalls depleted the upward energy available in the thermals and clouds for lift, the Pilot was forced to cut short his intended flight. Thus, the decision to make an out-landing in a field was the only course of action available to him, and was a normal procedure for a glider pilot.

When out-landing at a previously un-reconnoitred site, glider pilots usually perform a three-point circuit around the potential site. This enables them to view it from a number of different perspectives and thus to assess the site for obstacles, slope, surface condition, livestock, etc. Avoiding a down-slope landing (whenever possible) is a key factor in making a successful out-field landing, since landing down-slope will invariably result in a significantly longer landing run, with the consequent possibility of exceeding the landing distance available.

In this case, the Pilot did not correctly assess the slope of the field prior to its selection. By the time he realised that he was landing down-slope he was committed to the landing and had no alternative but to continue. The Investigation notes that the landing was made approximately into wind.

Seeing that the glider was likely to impact the field boundary fence and hedge, a scenario which could have serious consequences for both the glider and its occupant, the Pilot made a decision to ground loop the glider to the right, thus avoiding the field boundary, but damaging the fuselage of the glider.

The Investigation notes that the glider touched down at a speed of 55 kts, as reported by the Pilot. The Investigation considers this speed to be high, given the published approach speed of 49 kts. This would have compounded the stopping difficulties faced by the Pilot.

In addition, the fact that the field surface was wet due to the squally shower activity at the time is likely to have had a significantly detrimental effect on the braking capability of the drum brake fitted on the main wheel, thus further increasing the difficulties the Pilot faced in stopping the glider.

In a report submitted to the BGA after the accident, the Pilot proposed that, in order to reduce the risk of re-occurrence of such an event, he would carry out a series of motor-glider field landing exercises. This is a proposal which the Investigation endorses.

3. CONCLUSIONS

(a) Findings

1. While performing an intended closed-circuit cross-country flight from EIBR, G-EDMV made an unscheduled out-landing in a field due to deterioration in the weather conditions.

2. The Pilot did not make an adequate assessment of the landing site and did not realise that it was down-slope until after he was committed to the landing.

3. There was an insufficient landing distance available to the Pilot, due to the down-slope and probably also due to degraded braking action in the wet conditions. This was exacerbated by a high touch-on speed.

4. The Pilot ground looped the glider to the right after landing, to avoid impacting the field boundary fence and hedge.

5. The glider sustained significant fuselage damage during the ground-loop manoeuvre.

(b) Probable Cause

Inappropriate assessment of an unscheduled landing site by the Pilot.

4. SAFETY RECOMMENDATIONS

This Investigation does not sustain any Safety Recommendations.

- END -