Air Accident Investigation Unit Ireland

SYNOPTIC REPORT

ACCIDENT

Urban Air UFM-10 Samba XLA, EI-XLA
Birr, Co. Offaly, Ireland
12 June 2013

An Roinn Iompair Turasóireachta agus Spóirt
Department of Transport, Tourism and Sport

Foreword

This safety investigation is exclusively of a technical nature and the Final Report reflects the determination of the AAIU regarding the circumstances of this occurrence and its probable causes.

In accordance with the provisions of Annex 13[1] to the Convention on International Civil Aviation, Regulation (EU) No 996/2010[2] of the European Parliament and the Council, and Statutory Instrument No. 460 of 2009[3], safety investigations are in no case concerned with apportioning blame or liability. They are independent of, separate from and without prejudice to any judicial or administrative proceedings to apportion blame or liability. The sole objective of this safety investigation and Final Report is the prevention of accidents and incidents.

Accordingly, it is inappropriate that AAIU Reports should be used to assign fault or blame or determine liability, since neither the safety investigation nor the reporting process has been undertaken for that purpose.

[1] **ICAO Annex 13**: International Civil Aviation Organization, Annex 13 to the Convention on International Civil Aviation, Air Accident and Incident Investigation.
[2] **Regulation (EU) No 996/2010**: of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation.
[3] **SI 460 of 2009**: Air Navigation (Notification and Investigation of Accidents, Serious Incidents and Incidents) Regulations 2009.

AAIU Report No: 2014 - 008
State File No: IRL00913054
Report Format: Synoptic Report
Published: 25 June 2014

In accordance with Annex 13 to the Convention on International Civil Aviation, Regulation (EU) No 996/2010 and the provisions of SI 460 of 2009, the Chief Inspector of Air Accidents on 12 June 2013, appointed Mr Paddy Judge as the Investigator-in-Charge to carry out an Investigation into this Accident and prepare a Report.

Aircraft Type and Registration:	Urban Air UFM-10 Samba XLA, EI-XLA	
No. and Type of Engines:	1 x Jabiru 2200A	
Aircraft Serial Number:	XXLA 35	
Year of Manufacture:	2005	
Date and Time (UTC[4]):	12 June 2013 @ 15.20 hrs	
Location:	Crinkle, Birr, Co. Offaly, Ireland N53° 01.06', W007° 53.58'	
Type of Operation:	General Aviation - Cross-country	
Persons on Board:	Crew - 1	Passengers - 1
Injuries:	Crew - 1	Passengers - 1
Nature of Damage:	Aircraft Destroyed	
Commander's Licence:	PPL(A)[5] issued by the Irish Aviation Authority (IAA)	
Commander's Details:	Male, aged 57 years	
Commander's Flying Experience:	715 hours, of which 126 were on type	
Notification Source:	An Garda Síochána	
Information Source:	AAIU Report Form submitted by Pilot AAIU Field Investigation	

[4] **UTC**: Universal Time Co-ordinated. All timings in this report are quoted in UTC; to obtain the local time add one hour.
[5] **PPL(A):** Private Pilot Licence (Aeroplane).

SYNOPSIS

Shortly after take-off from EIBR the aircraft turned left at approximately 500 ft. It was seen by a witness to descend in an unstable manner and recover following which it continued to descend. The aircraft impacted an electric utility pole and a hedge before coming to rest in a field at Crinkle, Birr. Both occupants suffered minor injuries.

While the cause could not be conclusively determined, it is likely that localised atmospheric conditions ahead of a heavy rain cell coupled with low airspeed resulted in loss of lift.

One Safety Recommendation is issued as a result of this Investigation.

NOTIFICATION

The Garda Síochána at Birr advised the AAIU of the accident at 15.40 hrs. The AAIU requested that the accident site be secured and dispatched an investigation team which arrived on site at 18.45 hrs.

1. FACTUAL INFORMATION

1.1 History of the Flight

The aircraft had earlier flown from Abbeyshrule (EIAB) to Birr Airfield (EIBR), the intention being to return to EIAB. There were two people on board, the Owner and another pilot as passenger. The Owner operated as pilot flying (PF) in the left hand seat on the initial sector. On arrival at EIBR they met another person who later witnessed the aircraft taking off. Before departure the Owner and passenger switched seats with the passenger becoming the Pilot, flying from the left hand seat. Following a normal take-off, a climbing turn was made at about 500 ft above the ground. The aircraft was then seen to "*wobble*" twice and descend out of view. It initially hit an electricity pole and then collided with a tree, losing its right wing. It impacted the ground nose first, falling onto its right hand side with its left wing detaching. Both occupants suffered minor injuries and were brought to hospital following which they were released.

1.2 Interviews General

Two witnesses observed the aircraft climbing after take-off, one at the airfield and one in a nearby house, and both provided statements to the Investigation. The Pilot and the Owner were also interviewed.

1.2.1 Witness at EIBR Airfield

This witness met the aircraft when it arrived at EIBR. He stated that shortly afterwards, due to concerns about the weather closing in from Roscrea [the southeast], the aircraft departed. After take-off the aircraft turned left at, he thought, about 400-500 ft.

He observed it descend and saw a "*wing drop towards the airfield as though it had stalled*". He saw a flash and then heard a bang. He did not hear the engine cut out before the impact.

1.2.2 Witness near the accident site

This witness was a young boy who stated that he was in his bedroom when something caught his eye. He looked out the window and saw the aeroplane "…*wobbling from side to side*. *It was very low and it kind of curved into the tree and the left wing broke off and it went into the wires. Sparks flew everywhere and it just went straight to the ground*". As he was inside the house he did not hear the engine noise.

He told his father who immediately went to the accident site with another person. His father stated that, although it was dry while they were going down to the site, "*torrential rain*" came down immediately afterwards. The rain was so heavy that they were unable to use mobile phones.

1.2.3 Pilot

The Pilot stated that he was PF for the return flight from EIBR to EIAB. They took-off on Runway (RWY) 18 since the wind was about 5 knots from the south. There was slight drizzle at the time. He stated that the take-off and climb out were normal and that he made a left turn at approximately 500 ft QFE[6] for a downwind departure towards EIAB. He believed that they were established in level flight at about 500 ft when the nose and left wing of the aircraft suddenly dropped. The aircraft lost altitude and descended he thought to about 150 ft above the ground. He said that level flight was restored and he climbed the aircraft but the same thing happened again. When the aircraft had returned to level flight after the initial descent it suddenly veered to the right in a descending turn and impacted with power lines and trees. He did not remember the airspeed at the time of the occurrence and stated that at the onset of the occurrence the power setting was at normal climb power.

There were heavy showers approaching from the south, he thought about one mile away at the time, and he believed that they might have encountered a sudden wind shear with turbulence and a downdraught. After the accident he exited the upturned wreckage, released the unconscious Owner from his harness and pulled him clear of the aircraft. Shortly afterwards the Owner regained consciousness and local people arrived to render assistance; the Emergency Services later attended.

1.2.4 Owner

The Owner informed the Investigation that he and the Pilot were aware before they originally departed from EIAB that poor weather was forecast for later in the day. Before start he had checked the fuel and refuelled the aircraft to 50 litres (L), about half full since the maximum fuel capacity was 100 L. He recalled that having dipped the fuel he was aware that there was approximately 30 L in the left tank and 20 in the right and that the fuel selector valve was selected to the left tank.

---

[6] **QFE:** An altimeter barometric setting that displays height above the runway.

Following pre-flight checks they took-off with the Owner as PF. The en-route weather to EIBR was smooth with good visibility other than an occasional light shower. They landed at EIBR, shut down the engine and were met by a relative. However, they decided to leave shortly afterwards as the weather looked dark to the south or southwest.

They switched seats with the Pilot operating the aircraft thereafter. The Owner stated that he and the Pilot had flown together on a regular basis and that he considered him competent.

The Owner stated that the grass runway was wet at the time of take-off. After take-off they climbed and he stated that their *"height was OK*" when the PF turned crosswind and levelled out. He said that all of a sudden, the aircraft "*dipped to the left*". The PF recovered and then suddenly the aircraft rolled over to the right. He saw "*an open field with grass coming up at a funny angle".* He did not remember the impact and regained consciousness outside the aircraft wreckage. He stated that he had no explanation for what had happened as the weather was not unusually bad. He was taken to hospital where his injuries, mainly cuts, proved to be minor.

He commented that the engine sounded good and that they had used full power for take-off. The engine was then throttled back a little as was usual during the climb and that it sounded normal. Although there was no stall warning system fitted on the aircraft he was fairly sure that he could recognise stall symptoms and did not believe that they had stalled. He did not remember any turbulence and his recollection was that the conditions were completely normal when the event suddenly happened. He was not watching the airspeed indicator during the occurrence and did not know what it was showing.

He commented that the aircraft was normally difficult to stall as the stick has to be held well back in order to hold the nose up. He stated that during a stall the aircraft wallows and stalls about 35 kts. He said that normally after take-off they turned crosswind at 300 ft and he thought that they might have reached 600 ft before the onset of the occurrence.

The Owner stated that he also regularly flew other single engine aircraft. He commented that EI-XLA had been built in the Manufacturer's factory and that there were no technical problems with the aircraft prior to the accident.

1.3 Accident Site

The accident site was located in a small crop field, approximately 300 metres (m) from the end of the runway on a bearing of 114° magnetic. Both wings had separated from the wreckage (**Photo No. 1**). The engine had almost separated from the fuselage, being retained only by cables and a fuel line. The fuselage of the aircraft was lying semi-inverted on its left side. The right main wheel had detached and the canopy was broken.

Photo No. 1: Final resting position of EI-XLA with bent insulator on top of utility pole and wing embedded in tree.

The adjacent boundary of the field was a tall hedge in which ash trees were located. A second hedge abutted at right angles on the far side of the hedge. A utility pole was located beside the intersection of these two hedges. This pole supported three 20 KVA electric power cables. The top insulator of this pole was bent but had not fractured. Part of the leading edge of the right wing was found 5.4 m to the far side of this pole, embedded in the upper part of the second hedge.

The complete left wing was found lodged in the upper section of an ash tree located in the near hedge, approximately 5 m off the ground where a large branch had been broken. The fuselage was 21 m from the tree. Evidence of an initial ground impact was found 10.5 m from the tree where an indent from the propeller hub and fragmented parts of the disintegrated wooden propeller were also found. These parts and the propeller hub, which remained attached to the engine, displayed damage consistent with the engine being under power at impact.

The inverted right wing, on which the flaps were retracted, lay 5 m from the fuselage or 26 m from the tree. Both elevator and rudder continuity were confirmed. It was not possible to fully check aileron continuity due to impact damage when the wings detached causing splaying of the composite aileron torsion bars and damage to the ailerons during the impact. Nevertheless, the Investigation did not identify any pre-accident defect that would have inhibited aileron operation. Within the cockpit, the fuel valve was found selected to the left tank with the carburettor heater knob in the cold position. Both ignition switches were selected to ON.

There was associated crop damage to the field due to the accident and the later recovery of the wreckage.

Following examination of the wreckage and the accident site the aircraft was removed to the AAIU facility at Gormanston for further examination. Whereas no pre-existing defects were found, the Investigation was unable to evaluate the accuracy or otherwise of the aircraft's airspeed indicator due to the extent of damage.

1.4 Aircraft Information General

The Samba XLA is a low wing, composite structure (carbon/Kevlar monocoque construction) aeroplane which is equipped with a fixed tricycle undercarriage. The aeroplane is 6 m long and has a 10 m high aspect ratio wing. The wings are equipped with winglets and electrically controlled flaps. Two 50 L fuel tanks are located in the wings. The monospar cantilever wings are attached to the aircraft via spar flanges.

The aircraft is powered by an 80 horse power (hp), horizontally opposed, four cylinder, Jabiru 2200A engine. In the case of EI-XLA the engine drove a two bladed wooden propeller, whereas a three-blade propeller can also be fitted. Engine power is controlled by a throttle lever located on the instrument panel and engine parameters, including rpm, are displayed on a single instrument mounted in the centre of the panel. Two seats, each equipped with a four point safety harness, are located side by side in the cockpit. The maximum approved weight of EI-XLA was 540 kgs. Its glide ratio is given as 20:1.

7

1.4.1 Airworthiness

The aircraft was operating under a valid Flight Permit (Number 9159) which was issued by the IAA on the 11 April 2013 and was due to expire on the 10 April 2014. The aircraft's annual maintenance check was conducted at 680 hours on 8 March 2013 by an Irish Light Aviation Society (ILAS) certified technician. The Certificate of Registration was issued on the 30 January 2008.

The aircraft logbook showed that on the 12 June 2013, the day of the accident, the aircraft took off from EIAB at 14.36 hrs and landed at EIBR at 15.10 hrs with the Owner as PF. The tachometer recorded 702.29 hours on arrival at EIBR. There were no defects reported.

1.4.2 Aircraft Performance

The Flight Manual (FM) for the Aircraft states that with the flaps at Take-Off position, the aircraft lifts-off at a speed above 38 kts following which the aircraft is accelerated to a climb speed of 54 kts. The best rate of climb speed of 64 kts requires that the flaps are retracted, since the maximum speed with flaps extended is 59 kts. The FM states that the rate of climb at 60 kts should be approximately 1,000 ft/min when 2,700 rpm is selected on the engine.

Fuel consumption is listed as 18 L/hr at maximum continuous power (3,100 rpm) and 10 L/hr at economy cruising power (2,500 rpm). The maximum take-off power for the engine is quoted as 80 hp at 3,300 rpm for 5 minutes; the maximum rpm achievable depends on the propeller fitted.

The aircraft's Flight Manual (FM) states that the aircraft's stalling speed is 38 kts flaps up and 35 kts with flaps extended and notes:

> *When the stall develops the aeroplane moves downward without pitching, is fully controllable and level flight may be recovered without excessive loss of altitude.*

The aircraft is designed so that both the weight of occupants and the weight of fuel are located close to the Centre of Gravity (C of G), the C of G range of the aircraft being 21% +/- 2%. The weight of the aircraft is estimated to be 54.4 kg below Maximum Take-Off Weight (MTOW) at the time of the accident (**Table No. 1**).

Load	**kg**
Operating Empty Weight	284.0
Pilot and passenger	171.7
Zero Fuel Weight	**455.7**
Fuel	29.9
Take-off Weight	**485.6**
Maximum Take-Off Weight	540.0
Underload	**54.4**

Table No. 1: Weight calculations

1.5 Personnel Information

The Pilot's original PPL licence was issued by the IAA on 8 October 1996, his PPL(A) being reissued on the 11 October 2006. This was converted to a PPL(A) JAR-FCL, issued by the IAA, on the 23 December 2009. Section IX of that licence states "*Validity: This licence is to be re-issued not later than 10/10/2011*". The Pilot stated that he had not noticed this requirement. His Single Engine Piston (SEP-LAND) Rating was renewed on the 12 October 2011 and was valid for two years. His Class 2 Medical Certificate was also valid with a limitation requiring that corrective lenses be available.

The Pilot's flying experience consisted of a total of 715 hours flying various types of light aircraft including both the UFM-10 Samba and the UFM-13 Lambada, similar types of aeroplane manufactured by the same company. He had a total of 126 hours on both these aircraft types and had logged 3 hours flying in the past 28 days.

The Owner, who had 1,213 hours flying, held an IAA issued PPL(A). His licence, rating and medical were valid.

1.6 Weather

Met Éireann Aviation Services Division was later requested to provide an aftercast of the conditions likely to have been experienced at EIBR at the time of the accident. The aftercast stated:

***Meteorological Situation**: A broad area of low pressure dominates the weather across Ireland, the UK and westwards into the mid-Atlantic. A low, centred just to the southwest of Ireland, drives an occluded front northwards towards the area of interest in a light east to south easterly flow. The air mass over the Birr region presented moderate instability characteristics.*

The aftercast stated that the following table indicates the likely conditions at the time the accident occurred:

Wind *Surface:* *2000ft:*	 *090°/05-07kt* *110°/10kt*
Visibility:	*7-10+km with automatic reports of 3,000-5,000m at Gurteen just after the time the incident occurred*
Weather:	*Light rain generally but with RADAR echoes and tephigram analysis showing potential for occasional heavier falls due to embedded convective activity.*
Cloud:	*SCT 1,000-1,500ft BKN 2,000-2,500ft risk of embedded Cb (with base at circa 2,000ft)*
Surface Temp/Dew Point:	*14/10°C*
MSL Pressure:	*1003 hPa*[7]
Freezing Level:	*Circa 8,000ft*
Other Comments:	*Radar imagery suggests that while there was some potential for thunder activity this was very isolated and did not occur in the Birr region. Despite this, there was still a risk of isolated heavy, embedded, showers. Such showers would have been accompanied by downdraught outflows*[8] *in the region surrounding the embedded convective cloud - with associated potential for light to moderate turbulence.*

The Owner reported that there were heavy showers to the south of the airfield at take-off and that deteriorating weather was expected from the south. He estimated the southerly wind to be about 5 kts.

1.7 Aircraft Speed and Drag relationships

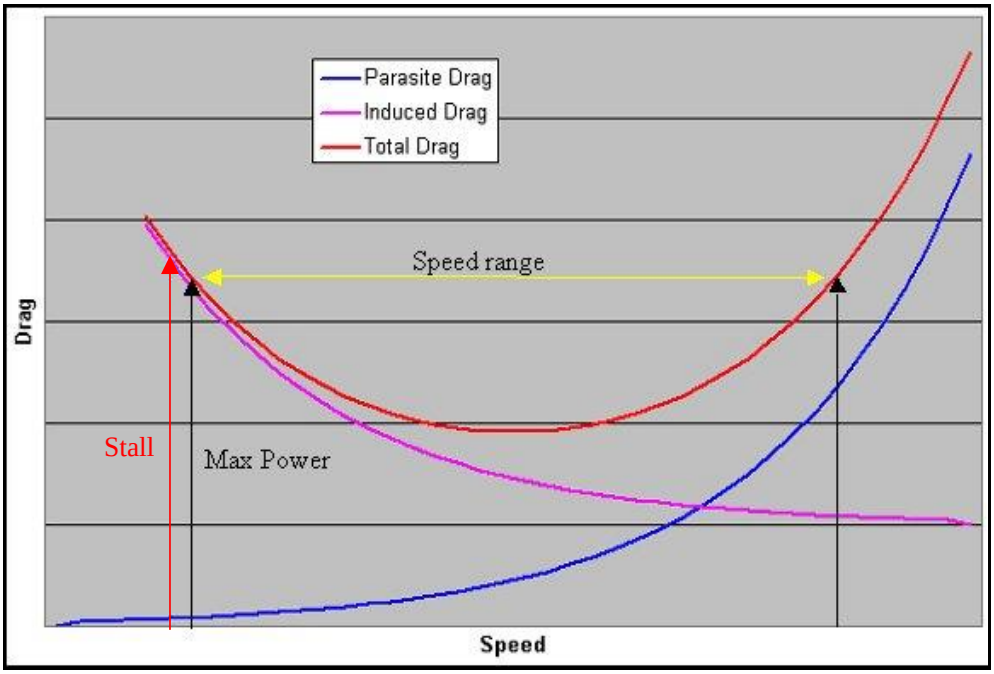
Drag on an aeroplane is a combination of two major factors: Parasitic and Induced drag. Essentially, Parasitic drag is caused by resistance to the movement of a body through the air, whereas Induced drag is the result of generating lift for flight. Parasitic drag is directly proportional to velocity squared whereas induced drag is inversely proportional to velocity squared.

[7] **hPa:** Hectopascals.
[8] **Outflow:** When a downdraught meets the surface of the earth an outflow results. When an aircraft traverses an outflow it can encounter rapidly varying wind conditions; a tailwind results in a loss of airspeed and lift.

In stable and level flight total drag is equal to the power output of the engine. As an engine has a maximum power output, there is a maximum amount of total drag that can be overcome both at high speed and at low speed.

Between these points the speed range of the aircraft can be controlled, outside these points the aircraft decelerates. Whereas on the right side of the graph (**Graphic No. 1**) the aircraft decelerates into a controllable speed range, on the left hand side it decelerates towards a stall. The aircraft can only be flown out of this latter area by lowering the nose, accelerating and diving the aircraft if necessary. This cannot be done close to the ground.

The left hand side of the Total Drag curve is commonly referred to as the 'back of the drag curve' as the slower the aircraft's speed, counter intuitively, the more power is needed to hold that speed until ultimately power reserve is exhausted and deceleration continues.



Graphic No. 1: Drag-Speed Relationships in stable flight

Note: Graphic No. 1 illustrates general principles of flight and does not represent any particular aircraft, as the drag curves for each aircraft depend on many factors including aircraft shape, wing design, weight and configuration. In addition the maximum power will vary with the type of powerplant fitted to the airplane.

1.8 Urban Air Samba XLA Stalling Characteristics

The FM, which also gives the stalling speeds of the aircraft, states "*When the aircraft stalls it moves downwards without pitching….*" The stalling characteristics of the aircraft with the engine operating at a high power setting are not described. Due to the limited information given in the FM, the Investigation conducted a flight in a similar model Urban Air Samba XLA in order to evaluate the stalling characteristics of the aircraft, with power off, turning and with high power settings. The flight was conducted by an instructor experienced on type, under the supervision of an AAIU Inspector.

The aircraft used was the same type and had the same engine as EI-XLA. The aircraft was loaded to a similar weight as the accident aircraft and the flight was operated in similar wind and temperature conditions. Stalls were conducted with flaps up at 3,500 ft with the flight path was recorded using a GPS. The aircraft's displayed indicated airspeed was compared to GPS readings, corrected for the prevailing wind and was found to be accurate.

With the engine at a low power setting the aircraft encountered a slight buffet as it decelerated towards the Manufacturer's published stalling speed 38 kts. The stall manifested itself in a slight nose drop with the aircraft descending more or less wings level in a stable manner. During the stall the aircraft sank rather than the more usual pitch down. Height loss with the normal recovery procedure was typically 50 to 70 ft with the aircraft being stable and controllable. As no stall warning is fitted, nor is it required to be, the approach to the stall manifested itself only by a slight buffet shortly before the stall. There was no evidence of any tendency to drop a wing on entry into a stall without power. When elevator back pressure was maintained into the stall, with pitch increasing to prevent altitude loss, a gentle left wing drop occurred followed by the nose dropping. In the case of a stall with a 15° bank to either the left or right, height loss increased to between 125 and 150 ft.

There was a slight increase in the amount of buffet as the speed reduced towards 38 kts during entry into a stall with a high power setting (2,600 rpm). Maintaining back pressure on the stick (to maintain altitude) with the airspeed dropping below the stall speed resulted in the aircraft flicking initially slightly right (about 10°) and then rolling left with a significant left wing drop before the nose dropped. Corrective controls applied at 70° bank were immediately effective and a normal recovery ensued. The aircraft demonstrated these characteristics repeatedly with GPS records showing that on average 280 ft was lost during such full stalls.

The Investigation is satisfied that the flight controls were effective down to the stall and that, with or without power, the aircraft recovered normally once corrective action was taken.

2. ANALYSIS

2.1 General

Witnesses saw the airplane taking off from EIBR and climbing normally. Following a left turn towards the east at a normal height the aircraft was seen to wobble, descend and recover. It then wobbled again with a further descent and crashed. During the final sequence on an easterly heading, the aircraft struck and damaged the insulator on the top of the utility pole with its right wing, part of which separated. The young witness saw the aircraft strike an ash tree a short distance away and lose a wing, which detached and remained suspended in the tree. Both of these strikes absorbed much of the energy of the aircraft which then fell to the ground and impacted nose first a short distance away. It is likely that the already damaged right wing then separated.

Although the witness described the aircraft hitting the tree with the wing breaking off and then a flash, the evidence from the accident site indicates that this sequence was reversed.

The Pilot had over one hundred hours flying this type of aircraft and three hours flying in the past 28 days, which is considered a reasonable level of currency in general aviation. Although he was unaware that his licence was no longer valid, he had fulfilled the operational requirements for renewing it. Consequently, this administrative oversight was not a factor in the accident.

2.2 Airspeed

Ground witness marks and the fragmented remains of the wooden propeller indicate that the engine was under power when the airplane impacted the ground. Neither the Pilot nor the Owner was aware of the airspeed during the event. Both reported that it happened suddenly and that the flight had been normal up to that point. In addition they stated that the engine had been operating normally. The statements by the Pilot, the Owner and the observations by the witnesses are consistent regarding the wing drops and subsequent descents. This could infer that the aircraft had stalled. Furthermore, as there was no stall warning system fitted, nor was it required to be, it could be difficult for the Pilot to recognise a stalled condition should this be unexpectedly encountered. This is particularly so since warning of a stall consists only of light buffet. The Investigation notes that although the stalling characteristics of the aircraft without power are benign, the evaluation flight conducted showed that at high power settings a stall consistently resulted in a significant left wing drop. Both occupants of the aircraft describe an initial left wing drop during the onset of the occurrence but significantly a later right wing drop before impact. This latter wing drop is not consistent with what was found during the evaluation flight. Nevertheless, the accident site evidence indicated that, although the engine was under power, the airplane was at a low airspeed and observations of witnesses are consistent with an aeroplane operating in or close to the stall regime.

As previously noted slow airspeeds (towards the ‘back of the drag curve’) require additional power and as the airspeed reduces ultimately power reserve is exhausted and deceleration continues. As the aircraft was fitted with an 80 hp engine it did not have a large power reserve should adverse conditions be unexpectedly encountered.

2.3 Weather

Both occupants were aware that the weather was closing from the south and hastened their departure from EIBR. In addition, a very heavy shower was reported shortly after the event. Although the occupants of the aircraft did not report turbulence, the meteorological aftercast obtained stated that isolated heavy showers embedded in the air mass would have been accompanied by downdraught outflows in the region surrounding the embedded convective cloud. Considering that witnesses reported a very heavy shower immediately after the accident, it is possible that the aircraft suddenly encountered a downdraught and/or outflow associated with the approaching weather. Encountering a sudden outflow in the form of a tailwind would cause an abrupt increase in groundspeed with an associated loss of airspeed and lift due to the inertia of the aircraft.

The Investigation notes that a loss of 20 kts, if climbing at the recommended climb speed of 60 kts, would result in the airplane being close to the flaps up stall speed of 38 kts. This may have been the case as neither pilot was aware of aircraft's speed during the occurrence.

If this outflow had a downdraught component, the 80 hp engine fitted to this aircraft may not have had adequate power to recover from the situation, particularly if the aircraft was slow and 'on the back of the drag curve'.

Pilots should be aware that approaching weather fronts may generate unexpected wind variations that could have a significant adverse effect on the performance of an aircraft, especially of those with lower engine power. In such cases airspeed awareness and energy management by pilots may become critical issues, particularly when operating close to the ground

The Investigation notes that the GPS recovered from the aircraft did not contain any relevant data which would have assisted the Investigation in further examining the cause of the unintentional descent. Although the GPS fitted to the aeroplane had the capability of track recording, it was not enabled and therefore no data was available. If track recording had been enabled the Investigation could have been able to definitively determine the extent to which outflow was a factor in this accident. Consequently, a Safety Recommendation is issued to the General Aviation Safety Council of Ireland (GASCI) that it advises members who use GPS that they should enable track recording to ensure the availability of data post flight.

13 **2.4** **Survival**

The low speed at which the accident happened resulted in the occupants suffering only minor injuries. Although the resting position of the wreckage was semi-inverted, ground impact was engine/nose first with the occupants adequately restrained by the four point harness system with which the aircraft was equipped. Although the canopy was shattered the cockpit compartment of the composite construction aircraft had remained substantially intact, thus protecting the occupants.

3. CONCLUSIONS

(a) Findings

1. The airworthiness certification of the aircraft was valid.
2. The aircraft weight and centre of gravity were within limits.
3. No pre-existing technical problems were reported with the aircraft.
4. The Pilot had renewed his rating and medical but his licence had not been renewed.
5. The aeroplane was observed by two witnesses to descend in an unstable manner.

6. A witness saw it hit an electricity pole and then lose a wing when it hit a tree.

7. The impact occurred at a low speed.

8. The engine was under power at impact.

9. A heavy downpour occurred shortly after the accident.

10. The meteorological aftercast indicated that such showers would have been accompanied by downdraught outflows.

11. Neither pilot observed the airspeed indication during the occurrence.

(b) Probable Cause

1. Loss of lift at a low altitude, possibly the result of a downdraught outflow.

(c) Contributory Cause

1. Failure to monitor airspeed during the occurrence.
2. Inadequate height to recover from the event.

4. SAFETY RECOMMENDATIONS

No.	It is Recommended that:	Recommendation Ref.
1.	The General Aviation Safety Council of Ireland (GASCI) should advise members that their GPS should have the track recording feature enabled so that post flight data is available for evaluation if required.	IRLD2014018

View Safety Recommendations for Report 2014-008

- END -

In accordance with Annex 13 to the Convention on International Civil Aviation, Regulation (EU) No 996/2010, and Statutory Instrument No. 460 of 2009, Air Navigation (Notification and Investigation of Accidents, Serious Incidents and Incidents) Regulation, 2009, the sole purpose of this investigation is to prevent aviation accidents and serious incidents. It is not the purpose of any such investigation and the associated investigation report to apportion blame or liability.

A safety recommendation shall in no case create a presumption of blame or liability for an occurrence.

Produced by the Air Accident Investigation Unit

AAIU Reports are available on the Unit website at www.aaiu.ie

An Roinn Iompair Turasóireachta agus Spóirt
Department of Transport, Tourism and Sport

Air Accident Investigation Unit,
Department of Transport Tourism and Sport,
2nd Floor, Leeson Lane,
Dublin 2, Ireland.
Telephone: +353 1 604 1293 (24x7): or
+353 1 241 1777
Fax: +353 1 604 1514
Email: info@aaiu.ie
Web: www.aaiu.ie