



# Air Accident Investigation Unit Ireland

**ACCIDENT REPORT**  
**BRM Land Africa, EI-ECW**  
**Bréandroim, Co. Galway**  
**24 March 2012**



**An Roinn Iompair  
Turasóireachta agus Spóirt**

Department of Transport,  
Tourism and Sport

## FINAL REPORT

AAIU Report No: 2012-020  
 State File No: IRL00912033  
 Report Format: Synoptic Report  
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In accordance with Regulation (EU) No. 996/2010 and the provisions of SI 460 of 2009, the Chief Inspector of Air Accidents, on 24 March 2012, appointed Mr. Leo Murray 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.

<b>Aircraft Type and Registration:</b>	BRM Land Africa, EI-ECW
<b>No. and Type of Engines:</b>	1 x Rotax 912 ULS (60kW)
<b>Aircraft Serial Number:</b>	0116/K4/08-LA
<b>Year of Manufacture:</b>	2009
<b>Date and Time (UTC<sup>1</sup>):</b>	24 March 2012 @ 11.00 hrs
<b>Location:</b>	Bréandroim, Co. Galway
<b>Type of Operation:</b>	Private
<b>Persons on Board:</b>	Crew - 1      Passengers - Nil
<b>Injuries:</b>	Crew - Nil
<b>Nature of Damage:</b>	Substantial
<b>Commander's Licence:</b>	Irish Private Pilot Licence (Aeroplanes)
<b>Commander's Details:</b>	Male, aged 61 years
<b>Commander's Flying Experience:</b>	315 hours, of which 45 were on type
<b>Notification Source:</b>	Pilot
<b>Information Source:</b>	AAIU Field Investigation AAIU Accident Report Form submitted by Pilot

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<sup>1</sup> UTC: Universal Time Co-ordinated, which is the same as Greenwich Mean Time



## SYNOPSIS

The Pilot made the short 15 minute flight from his private airstrip at Corr Na Móna to a field at Bréandroim. The intended landing site consisted of an unprepared field with a significant uphill gradient. On landing, the nosewheel assembly failed and the aircraft pitched forward in soft ground and came to rest in an inverted position. The Pilot, who was uninjured, evacuated without delay from the overturned aircraft.

### 1. FACTUAL INFORMATION

#### 1.1 History of the Flight

EI-ECW was normally based at the Pilot's private airstrip at Corr Na Móna, Co. Galway. From here he flew to Bréandroim, also in Co. Galway, with the intention of landing in a field adjacent to his son's house. The short flight was routine. The selected landing field had a significant uphill gradient, in the intended landing direction. The touchdown was made without any bounce but the aircraft rapidly dug in, fracturing the nose leg at the attachment to the fork bracket. This bracket folded up behind the nose leg; all three propeller blades then sheared due to ground contact. Due to the dug-in nose leg and forward inertia, the aircraft pitched forwards on its nose and came to rest in the inverted position (**Photo No. 1**).



**Photo No. 1:** Final resting position of EI-ECW (*Pilot photo*)

The Pilot suffered no injuries during the event; once the aircraft came to rest, he released his 4 - point safety harness and evacuated the aircraft. The aircraft was substantially damaged, and as there was risk of fire due to spilled fuel, the Pilot recovered it to an upright position and secured it, pending the arrival of the AAIU Inspector.

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**1.2 Field Investigation**

An Inspector from the AAIU travelled to the scene the same day. The aircraft was inspected having been recovered to an upright position. Damage included the shearing of the nosewheel fork bracket which pulled across three of the retaining bolts. All propeller blades were fractured. The starboard wing was twisted and the aft fuselage broken across two frames (**Photo No. 2**).



**Photo No. 2:** Aircraft recovered to upright position

The ground at the landing site was dry but very soft. The witness marks showed that there was an initial heavy left main wheel contact, followed by the right main, these marks were continuous indicating a skid due to lack of wheel rotation. A deeper gouge between the main wheel tracks indicated the point of nose leg failure, followed by the first of twelve propeller blade strike marks. The final mark in the direction of landing was made by the impact of the fin with the aircraft having inverted.

The Pilot was interviewed at the site and provided the Investigation with a full and frank account of the event. This was his first attempt to land at this site and the short flight from his home strip was uneventful until landing. He recalled that the landing was not hard, nor did the aircraft bounce, but immediately after touchdown he felt the aircraft was skidding to the right towards the boundary fence; he thought at the time that the nose wheel may not have been straight. With the nose leg damaged, the propeller blades contacted the ground and shattered. As the aircraft dug in, it went up on its nose; the momentum pitching the aircraft forwards to an inverted position.



### 1.3 Aircraft Information

The BRM Land Africa is an ultralight aircraft designed and built in Portugal. The aircraft is of all metal construction, featuring a strut-braced high wing with accommodation for two occupants in side-by-side configuration. High lift devices on the wing give the aircraft short take-off and landing (STOL) characteristics with a take-off distance of 30 meters.

EI-ECW was supplied as a kit from the manufacturer and was assembled in Ireland in 2009. The aircraft was first registered in the State on 13 March 2009, with a change of ownership to the Pilot on 17 August 2011. A Flight Permit issued by the Irish Aviation Authority (IAA) was valid to 16 May 2012.

The Pilot was properly licensed with a Private Pilot Licence (Aeroplanes) Microlight Class Rating, applicable to operating the BRM Land Africa. A Class II Medical Certificate pertaining to this licence was valid to 17 July 2012.

## 2. ANALYSIS

The Land Africa type had adequate STOL performance to enable landing and take-off at the site at Bréandroim. The site however was quite restrictive, with significant uphill gradient and uneven ground. Due to the slope, landing could only be made uphill, with the landing run, close to and parallel to the boundary fence.

This was the Pilot's first landing at the site at Bréandroim, which would no doubt have presented a challenge to any pilot without significant experience in STOL operations. Faced with a short landing run and uphill slope, the landing flare would have been difficult to judge without practice. Due to the nature of the landing site, it is understandable that the Pilot may have inadvertently applied brake prior to touchdown. Directional control was compromised as the aircraft skidded. The probable application of brake, soft ground and slope resulted in excessive load being placed on the nose leg assembly due to rapid deceleration. The assembly failed at the weakest point, the bracket attaching the nose wheel fork to the leg assembly.

## 3. CONCLUSIONS

### (a) Findings

1. The accident occurred on the Pilot's first landing at the site.
2. The landing site was uneven with soft ground and a significant uphill gradient.
3. It is probable that the landing was made with the brakes inadvertently applied.
4. Witness marks indicate the main wheels did not rotate following touchdown resulting in the aircraft skidding towards the right.

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5. The nose leg fork attachment failed due to excessive loads on the component during deceleration.
6. Although the aircraft came to rest inverted, adequate restraint was provided by the 4-point safety harness resulting in no injury to the Pilot.

### **(b) Probable Cause**

The probable application of brake, the combination of soft ground and the upslope resulted in excessive loads being placed on the nose leg causing failure.

### **(c) Contributory Factors**

Inexperience in STOL landings at a confined site.

## **4. SAFETY RECOMMENDATIONS**

This Report does not sustain any Safety Recommendations.

- END -

In accordance with Annex 13 to the International Civil Aviation Organisation Convention, 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 these investigations is to prevent aviation accidents and serious incidents. It is not the purpose of any such accident 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 internet [www.aaiu.ie](http://www.aaiu.ie)



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