



**COPY Nr.**

**MINISTÉRIO DAS OBRAS PÚBLICAS, TRANSPORTES E COMUNICAÇÕES  
GABINETE DE PREVENÇÃO E INVESTIGAÇÃO DE ACIDENTES COM AERONAVES**

## **FINAL ACCIDENT REPORT**

**COSTA BLANCA FLIGHT TRAINING CENTRE, S.L.  
BEEHCRAFT 77**

**EC-KNU**

**Santarém Aerodrome**

**17<sup>th</sup> July 2009**



**FINAL ACCIDENT REPORT Nr. 26/ACCID/2009**

**NOTE**

This report states the technical findings regarding the circumstances and probable causes which led to this accident.

In accordance with Annex 13 to the International Civil Aviation Organisation Convention, Chicago 1944, Council Directive 94/56/EC, 21<sup>st</sup> NOV 1994, and article 11<sup>th</sup> n<sup>o</sup> 3 of Decree-Law n<sup>o</sup> 318/99, 11<sup>th</sup> AUG 1999, the sole purpose of this investigation is to prevent aviation accidents. It is not the purpose of any such accident investigation and the associated investigation report to apportion blame or liability.

The only aim of this technical report is to collect lessons which may help to prevent future accidents.

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## **SYNOPSIS**

On the 17<sup>th</sup> of July 2009, by 16:00 UTC<sup>1</sup>, the Beechcraft, model BE-77 aircraft, with Spanish registration EC-KNU, suffered an accident when landing at Cosme Pedrógão aerodrome, in Santarém.

The “Costa Blanca Flight Training Centre, S.L.” owned aircraft, usually based at Valencia Aerodrome, was involved in a cross country flight from Cordoba (LEBA) to Évora (LPEV), Santarém (LPSR) and back to Évora, carrying one pilot and one passenger on board.

Touching down after mid-runway, the pilot was unable to control the aircraft along the centre line, it started veering to the left, entered the sandy runway hedge for about 30m, until the nose wheel collapsed and the aircraft became upside-down, coming to an alt about five metres far from the runway margin.

Both people on board left the aircraft unharmed, with some aerodrome personnel support, but the aircraft suffered heavy damage.

GPIAA has been informed by phone, immediately, and an investigator travelled next morning to the site, starting the investigation process.

***This report has been released in Portuguese and English Languages.  
In case of conflict, Portuguese version will take precedence.***

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<sup>1</sup> - All times referred in this report, unless stated different, are UTC (Universal Time Coordinated) times. That date, in Continental Portugal, local time was equal to UTC + 1.

## 1. FACTUAL INFORMATION

### 1.1 History of the Flight

Beechcraft 77, registration EC-KNU, owned by “Costa Blanca Flight Training Centre, S.L.”, from Alicante (Spain) and usually based at Valencia (LEVC) aerodrome, on the 17<sup>th</sup> of July 2009, flew from Cordoba (LEBA) to Évora (LPEV), carrying on board two Norwegian citizens (two sisters), one pilot and one passenger. Their intention was to operate a cross-country flight, continuing to Santarém (LPSR), coming back to Évora and later on returning to Spain (Civil Aviation Academy, Ltd, in Castellon).

Departing LPEV by 14:42, the aircraft arrived at LPSR by 16:00 and prepared to land on runway 23. The approach was flown at high speed and above normal glide, the aircraft flew over the runway (3-4m high) until it touch-down after mid-runway.



Picture Nr. 1

As soon it landed, the aircraft started veering to the left. The pilot couldn't control the aircraft path and bring it into the centre line, using ruder control or differential braking.

It entered the unpaved area, the nose wheel penetrated in the sandy soil (breaking-up) and the aircraft capsized, resting on its top, about five metres offset of the runway and facing 020° approximately (*picture nr. 1*).

Some people working at the aerodrome called on the site and helped the occupants to evacuate the aircraft.

Fire & rescue services were called and, as there was some fuel spillage, some foam was discharged on site before the aircraft has been removed to the maintenance area.

## **1.2 Injuries**

Both people on board were uninjured, but some minutes later, with medical support already in place, the passenger started complaining she was not feeling good and reporting some headache and back pain. She was collared and taken to hospital for observation but nothing special has been detected.

## **1.3 Aircraft Damage**

The aircraft suffered heavy damage on nose gear, canopy & cabin top, right & left wings, tail and propeller (*picture nr. 2*).



Picture Nr. 2

## 1.4 Other Damage

There was no third party damage reported.

## 1.5 Persons Involved

There were two people on board, both with Norwegian citizenship.

The pilot was entitled with a Private Pilot License, issued by British Civil Aviation Authority and from her documents the following references were taken:

Personal References		Flight Experience		Total	Type
Sex:	F	Total:	109	62	
Age:	24	Last 90 days:	38,6	38,6	
Nationality:	Norwegian	Last 28 days:	28,6	28,6	
Flight License:	PPL(A)	Last week:	21,9	21,9	
Validity:	14-08-2013	Last 24 hours:	7,5	7,5	
Last Medical Examination:	29-08-2008	Landings last 24 hours:	3	3	

## 1.6 Aircraft

It was a single engine, propeller, lower wing, fixed tricycle landing gear, with a Maximum Take Off Mass (MTOM) of 760kg and accommodating two people on board, with following references:

Reference	Airframe	Engine	Propeller
<b>Manufacturer:</b>	Beech Aircraft Corp.	Lycoming	Sensenich
<b>Model:</b>	BE 77 Skipper	O-235-L2C	-
<b>Serial Nr.:</b>	WA-263	L-23633-15	K3688
<b>Flight Time TSN/TSO:</b>	4548/4548	2130/479	1223/1223
<b>Last Inspection:</b>	22-06-2009	22-06-2009	19-07-2006

Its Airworthiness Certificate was valid and it had followed the programmed maintenance actions. No defects or malfunctions were referred, prior to the accident.

## 1.7 Meteorology

The weather was fine, with more than 10km visibility, sky clear, wind direction 320°, variable to 050°, eight to ten knots intensity. The temperature was 23°C and dew point 11°C. QNH (aerodrome atmospheric pressure converted to sea level) was 1024hPs.

### 1.8 Navigation Aids

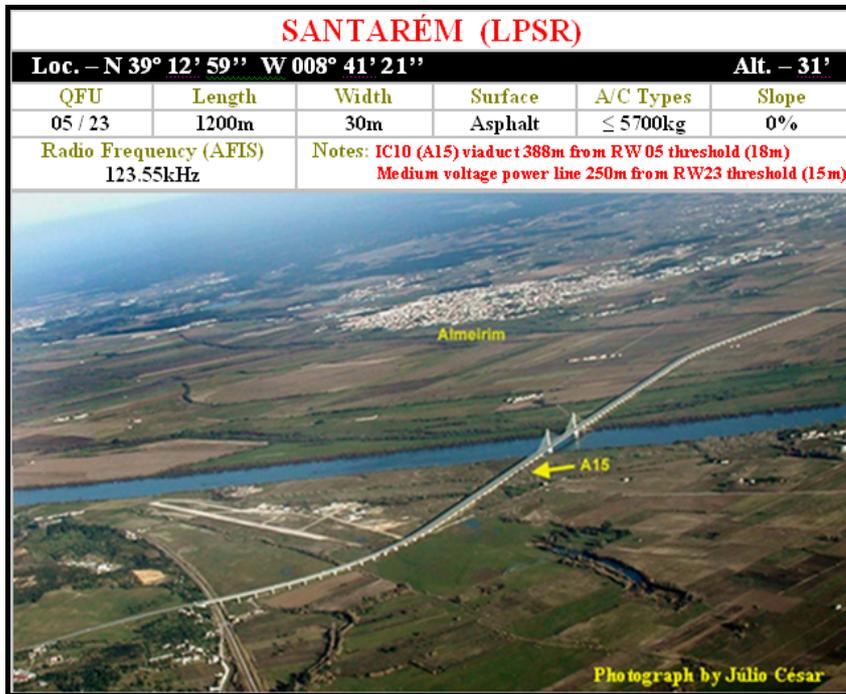
Not applicable.

### 1.9 Communications

The aircraft was equipped with radio communications and contact was established with Flight Information Services (FIS) but not with Santarém aerodrome.

### 1.10 Aerodrome

The privately owned Santarém aerodrome (Cosme Pedrógão) is located near Tagus river, 2NM south of the city and it is served by a single 1205m long runway (*picture nr. 3*).



Picture Nr. 3

Due the presence of IC10 (A15) viaduct on the approach path for runway 05, threshold has been displaced in order to give greater clearance over the obstacle, thus reducing landing distance available on RW05 to 980m while maintaining landing distance for RW23 at 1125m.

Mountainous terrain to N and NW.

Because the obstacles and the absence of a light system installed the aerodrome is open for daylight operations only.

### 1.11 Flight Recorders

The aircraft was not equipped with flight recorders.

### **1.12 Wreckage & Impact**

Wreckage was typical of a capsized manoeuvre due to nose gear collapse. There were no separated parts but left horizontal stabilizer and nose wheel.

### **1.13 Medical or Pathological**

Not applicable.

### **1.14 Fire**

There was no fire.

### **1.15 Survival Aspects**

Not applicable.

### **1.16 Tests & Research**

Pilot referred she couldn't stop the aircraft veering to the left, with ruder control nor differential braking, so a thorough inspection was carried out and no fault was detected on the operation of flight controls nor brake system.

### **1.17 Organizational & Management**

Not applicable.

### **1.18 Additional Information**

There's no other relevant information to refer.

## **2. ANALYSIS**

### **2.1 Flight Progress**

The pilot got her license one year before and used to fly the same aircraft, since June, from Castellon (LECN) aerodrome. After some trips inside Spain she was operating a cross-country flight from Valencia to Santarém, via Cordoba and Évora.

For the flight from LPEV to LPSR (like to every other sector) an ATC Flight Plan has been submitted and the pilot established contact with Portuguese Flight Information Services, on appropriate frequency. When approaching Santarém no contact was established with Aerodrome Flight Information Service and no local meteo report and aerodrome operation conditions were passed to the aircraft, before landing.

In spite of the wind being favourable for landing on runway 05, considering the presence of the viaduct on final approach path, the pilot chose to land on runway 23, with a more clear approach, not considering the presence of a power line 250m before threshold, which may be the pilot ignored its existence.

Performing a tail wind approach, the aircraft came too fast and couldn't reduce speed enough for a normal touchdown, floating over the runway until forced to the ground, after passing mid runway length.

### **2.2 Aircraft Control on the Ground**

Once on the ground, the pilot tried to stop the aircraft using brakes, but it started to deviate to the left, pushed by the right cross wind. She used ruder control in order to bring the aircraft back to the centre line but she was not successful and tried the use of differential braking, getting the same result.

When the pilot used right ruder to bring the aircraft into centre line, it continued to deviate to the left because the tail wind component, striking the deflected ruder increased the aircraft tendency to go to the left.

Leaving the asphalt surface the aircraft run about 30m prior the nose wheel penetrated in the sandy soil and broke apart. Animated with inertial energy, when the nose hit the ground, the aircraft capsized and became upside-down, with right wing hitting hard the soil and becoming wrinkled, while cabin top crushed and broke the windscreen and canopy. The tail struck the ground and left stabilizer was separated. At same time the impact forced the vertical stabilizer and ruder against tail boom, creasing it.

### **3. CONCLUSIONS**

#### **3.1 Findings**

Based on what has been exposed, we may conclude that:

- 1<sup>st</sup> The flight has been authorized and there were several ATC Flight Plans submitted to Air Traffic Management Services;
- 2<sup>nd</sup> The pilot had a valid license and was duly qualified to operate the aircraft;
- 3<sup>rd</sup> Aircraft airworthiness certificate was valid and maintenance programme had been followed, having no registries of any limitation or malfunction;
- 4<sup>th</sup> The wind in LPSR was favourable for landing on RW05, but the pilot opted for RW23 for landing;
- 5<sup>th</sup> The aircraft overflowed more than half runway, without touching-down, and when the wheels touched the ground, the aircraft started veering to the left, leaving the surfaced area;
- 6<sup>th</sup> After travelling about 30m on sandy soil, nose wheel collapsed and the aircraft capsized;
- 7<sup>th</sup> Both people on board suffered no injuries;
- 8<sup>th</sup> The aircraft suffered heavy damage;
- 9<sup>th</sup> No third party damage was reported.

#### **3.2 Causes of the Accident**

An unstabilized tail wind approach and a long flare caused the aircraft to touch-down after mid runway and caused the pilot to be unable to control the aircraft prior it left the tarmac and entered the sandy soil on runway hedge, where the nose wheel collapsed and made the aircraft capsize, resting upside-down.

#### **4. SAFETY RECOMMENDATIONS**

No safety recommendations were issued.