

**SOUTH AFRICAN**



**CIVIL AVIATION  
AUTHORITY**

**INTERIM REPORT IN RESPECT OF THE INVESTIGATION INTO THE CAUSE(S) OF AN ACCIDENT INVOLVING AN EMBRAER 135 LR AIRCRAFT, ZS-SJW DURING LANDING AT GEORGE AIRPORT ON 7 DECEMBER 2009.**

*The objective of an accident investigation is to establish the cause (s) of the accident and to take steps to prevent a further occurrence. As such the objective is not to apportion blame or liability.*

*The purpose of this investigation is therefore to ensure that the investigation is conducted in the most effective and comprehensive way to establish the cause(s). The investigation team is committed to adhering to the International Provisions defined in Annex 13 to the Convention on International Civil Aviation, of which South Africa is a signatory.*

*The process followed to date is in compliance with internationally accepted practices. On arrival at the incident scene, the team of accident investigators, commenced with the onsite investigation.*

*Following completion of the initial assessment and documenting of the incident site, a decision was made to remove the aircraft to the apron area at George Airport, where a more detailed investigation could be carried out. This had been done with the support and cooperation of the operator.*

**Issued by the AIID**

SACAA

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## Contents

	Page
1.0 Background	3
2.0 Actions taken to date	4
3.0 Factual information obtained to date	4
4.0 Injuries to Persons	5
5.0 Damage to Aircraft	5
6.0 Aircraft Information	6
7.0 Aerodrome Information	6
8.0 Flight Recorders	7
9.0 Survival Aspects	7
10.0 Tests and Research	8
11.0 Organizational and Management Information	8
12.0 Probable cause(s)	9
13.0 Safety Recommendations	9
14.0 Participation in the Investigation	9

## 1.0 Background

On Monday morning, 7 December 2009, flight SA8625 departed Cape Town International aerodrome on a domestic scheduled flight to George aerodrome with three crew members and thirty passengers onboard. The aircraft was cleared for an instrument landing system (ILS) approach Runway 11 at George aerodrome. The prevailing weather conditions at the time were overcast in light rain. The landing was captured on aerodrome surveillance cameras. It was determined that the aircraft touched down in the area of the fourth landing marker. According to the air traffic controller (ATC) on duty at the time the landing appeared normal, however the aircraft did not vacate the runway to the left as per normal operation but instead veered to the right and went past the ILS localizer. At this stage he realized that something was wrong and he activated the crash alarm. There was no communication or distress broadcast from the cockpit crew that indicated that they were experiencing a problem during the later part of the landing roll. The aircraft collided with eleven approach lights before it burst through the aerodrome perimeter fence, with the aircraft coming to rest in a nose down attitude on a public road. Several motorists stopped at the scene and assisted the passengers and crew who evacuated the aircraft through the main access door as well as the left over wing emergency exit. The aerodrome fire and rescue personnel were on the scene within minutes and assisted with the evacuation they also had to breakdown the cockpit access door to free the cockpit crew. Ten of the occupants were admitted to a local hospital for a medical check-up. All the occupants were released several hours later with no serious injuries being reported.

The accident occurred during daylight conditions at a geographical position determined to be South 34°00.306' East 022° 23.534' at an elevation of 610 feet above mean sea level (AMSL).



## **2.0 Actions taken to date include:**

- The aircraft was examined in detail for defects and to exclude factors that are not relevant to the cause of the incident;
- The Cockpit Voice Recorder (CVR) and Digital Flight Data Recorder (DFDR) have been removed from the aircraft and will be downloaded as soon as possible and the data converted to the correct engineering units.
- The Air Traffic Control recordings have been impounded and will be transcribed and analyzed;
- Compilation and review of relevant records in respect of the aircraft maintenance, operational and crew records is ongoing.

## **3.0 Factual information obtained to date can be summarized as follows:**

- The Embraer 135 LR aircraft requires an operating crew of two pilots.
- It is a requirement that pilots be trained and competent to take-off, fly, and land such aircraft. Pilots are required to maintain competency and are assessed a minimum of every six months to ensure that such competency is maintained.
- Operators define standard operating procedures (SOPs) which pilots are to follow during the various phases of flight. Such competency is again verified during an actual flight test or in a simulator.
- The aircraft is not equipped with thrust reversers.
- Rescue and fire-fighting services responded appropriately;
- All occupants escaped unharmed.
- Investigators have as yet to interview the crew members.
- The aircraft's mass and balance was within the prescribed limits.
- During landing it was raining at and in the vicinity of the aerodrome

#### 4.0 Injuries to Persons:

Injuries	Pilot	Crew	Pass.	Other
Fatal	-	-	-	-
Serious	-	-	-	-
Minor	2	1	7	-
None	-	-	23	-

#### 5.0 Damage to Aircraft:

5.1 The aircraft suffered extensive damage especially to the nose and aft fuselage area when it came to rest in a nose down attitude on a public road.



#### 5.2 Other Damage:

5.2.1 Eleven approach lights (Runway 29) was destroyed as the aircraft overran the runway surface. Approximately 100 m of the aerodrome perimeter fence was destroyed and required replacement.

## 6.0 Aircraft Information

Airframe:

<b>Type</b>	<b>Embraer 135 LR</b>
<b>Serial Number</b>	<b>145423</b>
<b>Manufacturer</b>	<b>Embraer Aircraft Company</b>
<b>Year of Manufacture</b>	<b>2001</b>

Engine:

<b>Type</b>	<b>Rolls-Royce AE 3007</b>
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## 7.0 Aerodrome Information:

<b>Aerodrome Location</b>	<b>6 km Southwest of the town of George</b>	
<b>Aerodrome Co-ordinates</b>	<b>South 34°00 24.13 East 022° 22 27.41</b>	
<b>Aerodrome Elevation</b>	<b>648 feet</b>	
<b>Runway Designations</b>	<b>11/29</b>	<b>02/20</b>
<b>Runway Dimensions</b>	<b>2000 x 45m</b>	<b>1160 x 30m</b>
<b>Runway Used</b>	<b>11</b>	
<b>Runway Slope</b>	<b>Up slope</b>	
<b>Runway Grooving</b>	<b>Partial</b>	
<b>Runway Surface</b>	<b>Asphalt</b>	
<b>Approach Facilities</b>	<b>ILS, DME, VOR, NDB, Runway lights, PAPI's</b>	
<b>Aerodrome Status</b>	<b>Licensed</b>	





NOTE: The runway was resurfaced during the course of the year. This task was completed in November 2009.

## 8.0 Flight Recorders:

The aircraft was equipped with a Honeywell solid state cockpit voice recorder (CVR), model CVR120-03737 as well as a Honeywell solid state flight data recorder (FDR), model SSFDR-07717.



## 9.0 Survival Aspects:

- 9.1 The accident was survivable as the cockpit and cabin area remained intact. The cockpit crew, as well as the cabin attendant, was wearing their four point safety harnesses. Due to the collapse of the nose landing gear assembly the entire cockpit floor structure where pushed upwards resulting in a substantial deformation. The first officer seated on the right-hand side, right lower leg had to be freed by rescue personnel before he was able to vacate the cockpit.
- 9.2 All passengers were wearing their aircraft equipped safety harness (lap straps) with only one seat (7A) back rest collapsing partially to a 45° angle.

The passengers that were seated at 2A as well as 3A were travelling with infants and had the children sitting on their laps. The infant was secured to their mothers by making use of special child/infant safety harness.

- 9.3 All passengers are still to be interviewed as to their experiences of the evacuation. Those already interviewed appear to differ as to whether a pilot had issued a brace command.



#### 10.0 Tests and Research:

- 10.1 The following components were removed from the wreckage containing non volatile memory:

- Central Maintenance Computer
- Brake Control Unit
- Spoiler Control Unit

- 10.2 These units are to be downloaded following the assessment of the FDR data.

#### 11.0 Organizational and Management Information:

- 11.1 The Operator of the scheduled flight was in possession of a valid Air Service License as well as Air Operating Certificate (AOC) that was issued by the National Department of Transport and the SACAA respectively.
- 11.2 The aircraft was maintained by a SACAA Approved aircraft maintenance organization (AMO).

## 12.0 Probable cause(s)

To establish the probable cause for the runway excursion during the landing, the following still needs to be undertaken:

- Verification that the crew had followed the correct standard operating procedures.
- Verify that no mechanical defect was present that could have affected the braking capability of the aircraft
- Verify whether the runway surface condition played a role in affecting the braking capability of the aircraft. In this respect it is proposed that an independent runway surface specialist company conduct a detailed audit on the George aerodrome runway surface. Special emphasis should be on water drainage (proper grooving) and friction measurement.

## 13.0 Safety Recommendations

No specific recommendations have been identified as yet.

## 14.0 Participation in the Investigation

Both the States of Manufacture and Design of the aircraft and its engines, i.e. Brazil and the United States of America, have appointed non-travelling Accredited Representatives, assisted by on-site advisors from Embraer, to support the South African investigators.

**-END-**

*The South Civil Aviation Authority (SACAA) wishes to acknowledge and thank the operator for their assistance and services rendered to date.*

*It is trusted that the investigation will lead to the introduction of corrective actions, should any deficiencies be identified, to ensure the continued safety of passengers transported in South African airspace and on South African aircraft.*