



Section/division Occurrence Investigation

Form Number: CA 12-12a

<b>AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY</b>
---

				Reference:	CA18/2/9144	
<b>Aircraft Registration</b>	ZS-OLR	<b>Date of Accident</b>	12 February 2013		<b>Time of Accident</b>	1050Z
<b>Type of Aircraft</b>	Extra EA-300/L		<b>Type of Operation</b>	Private		
<b>Pilot-in-command Licence Type</b>		Commercial Pilot	<b>Age</b>	62	<b>Licence Valid</b>	Yes
<b>Pilot-in-command Flying Experience</b>		Total Flying Hours	3203.29		Hours on Type	34.34
<b>Last point of departure</b>		FACT - Cape Town International Airport, General Aviation Area				
<b>Next point of intended landing</b>		FAKF-- Fistantekraal Airfield near Stellenbosch				
<b>Location of the accident site with reference to easily defined geographical points (GPS readings if possible),</b>						
In a field with small open areas and several trees, next to the Klipheuwel Rd, R304. (GPS Co-ordinates: S 33°47'46.11" E 18°45'16.86)						
<b>Meteorological Information</b>		Wind: Westerly/4 kts Visibility: CAVOK Temperature: 29°C				
<b>Number of people on board</b>	1+0	<b>No. of people injured</b>	0	<b>No. of people killed</b>	0	
<b>Synopsis</b>						
<p>On 12 February 2013, ZS-OLR, an Extra 300 aerobatic aircraft departed from Cape Town International, General Aviation Area on a Private Flight. The aircraft was en-route to Fisantekraal where the pilot carried out 3 successful touch and go circuits. The pilot then departed from Fisantekraal en-route to Stellenbosch Airfield. The pilot attempted to do a tank switch but turned the fuel selector to the incorrect position. Despite several attempts he was unable to move the fuel selector out of the OFF position. As he was not close enough to an airfield, the pilot choose an open area and carried out a forced landing.</p> <p>The aircraft sustained substantial damage to the wings, undercarriage and propeller.</p> <p>The pilot sustained no injuries</p>						
<b>Probable Cause</b>						
Unsuccessful forced landing due to Fuel starvation						
<b>Contributory factor:</b> Poor technique						
IARC Date				Release Date		



Section/division Occurrence Investigation  
Telephone number: 011-545-1000

Form Number: CA 12-12a  
E-mail address of originator: thwalag@caa.co.za

## AIRCRAFT ACCIDENT REPORT

**Name of Owner/Operator** :Rusty Starfish Aerobatix CC  
**Manufacturer** :Extra Flugzeugbau GMBH  
**Model** :Extra EA-300/L  
**Nationality** :South African  
**Registration Marks** :ZS-OLR  
**Place** :Next to Klipheuvel Road on the R304  
**Date** :12 February 2013  
**Time** :1050Z

*All times given in this report are Co-ordinated Universal Time (UTC) and will be denoted by (Z). South African Standard Time is UTC plus 2 hours.*

### Purpose of the Investigation :

*In terms of Regulation 12.03.1 of the Civil Aviation Regulations (1997) this report was compiled in the interest of the promotion of aviation safety and the reduction of the risk of aviation accidents or incidents and **not to establish legal liability.***

### Disclaimer:

*This report is given without prejudice to the rights of the CAA, which are reserved.*

## 1. FACTUAL INFORMATION

### 1.1.1 History of Flight

- 1.1.1 On 12 February 2013 at approximately 1020Z, the pilot onboard ZS-OLR departed from Cape Town International Airport en-route to Fisantekraal Airfield after carrying out a pre-flight inspection and had 57 litres of Avgas added to the existing contents of 60 litres.
- 1.1.2 The pilot completed 3 successful touch and go circuits at Fisantekraal airfield before continuing on to Stellenbosch Airfield.
- 1.1.3 On departure from the 3<sup>rd</sup> touch and go landing, the pilot commenced a left climbing turn towards Stellenbosch. During his cruise checks, the pilot noticed that the centre tank (main tank) was indicating just above ¼ tank full (20 litres) and therefore decided to change the fuel selector to the wing tanks as there were approximately 30 litres in the tanks.
- 1.1.4 During the climb at about 800 feet, the pilot turned the fuel selector through 180°. The engine sputtered and the pilot immediately realised that he had actually turned the selector to the **OFF** position.
- 1.1.5 The pilot attempted to rectify his mistake and switched on the electrical fuel boost pump. He attempted to unlock the selector several times, but without success.

- 1.1.6 The pilot flew away from the power lines in an Easterly direction. He was not close enough to an airfield and therefore opted to carry out a forced landing in a clearing bounded by small tress.
- 1.1.7 He once again tried the fuel selector to no avail. He then completed a Mayday call on frequency 113Mhz.
- 1.1.8 The pilot maintained his speed at 75kts, aimed at the clearing and rounded out, held the attitude and eventually collided with the trees at just above ground level.
- 1.1.9 The accident occurred during daylight conditions near the Country Fair chicken farm which is located next to the Klipheuwel Road at geographical co-ordinates determined to be S 33°47'46.11" E 18°45'16.86".

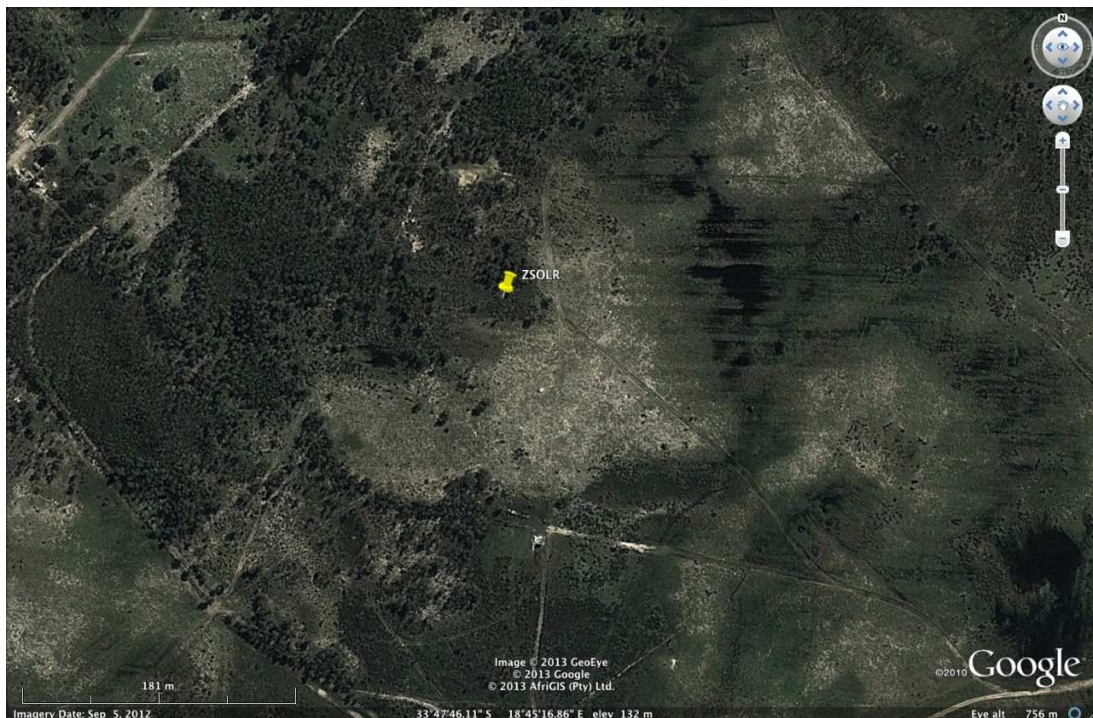


Fig 1: Google earth view of the accident site

## 1.2 Injuries to Persons

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

## 1.3 Damage to Aircraft

- 1.3.1 The wings sustained substantial damage when the aircraft collided with the trees.
- 1.3.2 The propeller and engine mount were also damaged.

1.3.3 The undercarriage also sustained substantial damage.



Fig 1: Damage to wing and undercarriage



Fig 2: Damage to the propeller



Fig 3: Damage to the wing

## 1.4 Other Damage

1.4.1 Several trees were damaged when the aircraft collided with them.



Fig 4: Damaged trees

**1.5. Personnel Information:**

Nationality	South African	Gender	Male	Age	62
Licence Number	0270433006	Licence Type	Commercial Pilot		
Licence valid	Yes	Type Endorsed	Yes		
Ratings	Test Pilot Rating (Grade 2) Night Rating				
Medical Expiry Date	28 February 2013				
Restrictions	Corrective lenses				
Previous Accidents	None				

**Flying Experience:**

Total Hours	3203.29
Total Past 90 Days	2.93
Total on Type Past 90 Days	2.93
Total on Type	34.34

**1.6 Aircraft Information****Airframe :**

Type	Extra 300L	
Serial Number	1229	
Manufacturer	Extra Flugzeugbau GMBH	
Date of Manufacture	9 April 2006	
Total Airframe Hours (At time of Accident)	520.19	
Last MPI (Date & Hours)	17 February 2012	495.62
Hours since Last MPI	24.57	
C of A (Issue Date)	18 February 2011	
C of A (Expiry Date)	17 February 2013	
C of R (Issue Date) (Present owner)	10 August 2011	
Maximum take-off weight	950kg	
Operating Categories	Standard	
Recommended fuel used	Avgas	

**Engine :**

Type	Lycoming AE10-540-LIB5
Serial Number	L-31236-48A
Hours since New	520.19
Hours since Overhaul	N/A

**Propeller :**

Type	MT Propeller MTV-9-B-C
Serial Number	6327
Hours since New	520.19
Hours since Overhaul	148.91

## 1.7 Meteorological Information

1.7.1. Information obtained from the pilot's questionnaire.

Wind direction	W	Wind speed	4 kts	Visibility	10km +
Temperature	29°C	Cloud cover	CAVOK	Cloud base	CAVOK
Dew point	-				

1.7.2 The weather did not play a role in the cause of this accident.

## 1.8 Aids to Navigation

1.8.1 The aircraft was equipped with standard navigational equipment as approved by the regulator for the aircraft type. There were no recorded defects that the Navigation system was unserviceable prior to or during the flight.

## 1.9 Communications.

1.9.1 The aircraft was equipped with standard communication equipment as approved by the regulator for the aircraft type and there were no recorded defects prior to or during the flight.

## 1.10 Aerodrome Information

1.10.1 The accident occurred during daylight conditions near the Country Fair chicken farm which is located next to the Klipheuvel Road, R304 at geographical conditions determined to be S 33°47'46.11" E 18°45'16.86".

## 1.11 Flight Recorders

1.11.1 The aircraft was not equipped with a Flight Data Recorder (FDR) or a Cockpit Voice Recorder (CVR) nor was either required by the regulations.

## 1.12 Wreckage and Impact Information

1.12.1 The pilot had no choice but to execute a forced landing in an open field. The aircraft struck several trees and came to a stop.

1.12.2 The fuel tanks ruptured and there was evidence of fuel spillage at the accident site.

1.12.3 The aircraft wings, propeller, shock mounts and undercarriage sustained substantial damaged during the forced landing.

## 1.13 Medical and Pathological Information

1.13.1 None.

## 1.14 Fire

1.14.1 There was no evidence of pre or post impact fire.

## 1.15 Survival Aspects

1.15.1 The accident was considered survivable due to the low impact forces that the aircraft was flying at.

1.15.2 The pilot was properly restrained by the aircraft safety harnesses fitted to the aircraft.

## 1.16 Tests and Research

1.16.1 Although the fuel selector system was inspected and found to be serviceable after the accident, additional investigation went into the location and use of the fuel selector. It was found that the selector is not situated in the most accessible area.



Fig. 5 Location of the fuel selector from the pilot seat

1.16.2 It is also obstructed by a document holder.

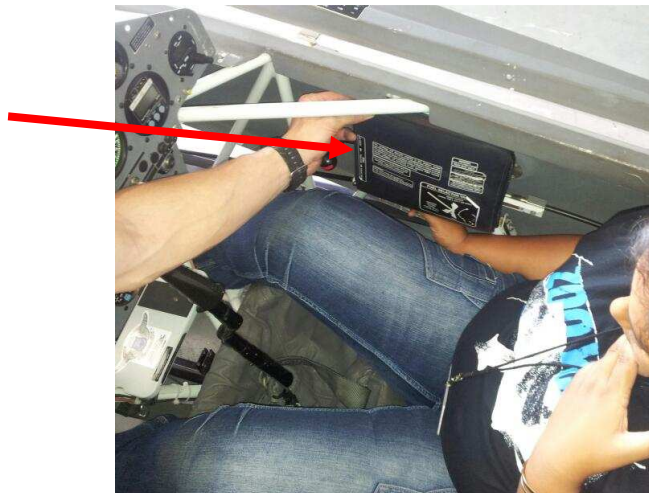


Fig. 6 Document folder in place

1.16.3 The fuel selector was also found to be very difficult to manoeuvre into the different positions.

1.16.4 The fuel selector is situated on the right hand side of the aircraft. The pilot uses his right hand to steer and left to control the throttles. Should the need arise to switch fuel tanks, the pilot is then required to steer with his left hand and not right.

## **1.17 Organizational and Management Information**

1.17.1 This was a private flight. The aircraft was on its way to Stellenbosch Airfield where it was scheduled to receive its MPI inspection at an approved Aircraft Maintenance Organisation (AMO).

1.17.2 The AMO was issued with a once-off permission to carry out the maintenance on this aircraft.

1.17.3 The last MPI carried out on this aircraft prior to the accident was certified on 17 February 2012 by a SACAA approved AMO.

1.17.4 The last compass swing was carried out on 14 January 2011.

1.17.5 As per aircraft logbook entries, the last AD's and SB's were checked in February 2011.

1.17.6 The MPI due hours in the flight folio did not correspond with the Aircraft logbooks. The aircraft did not overfly the MPI.

## **1.18 Additional Information**

1.18.1 None.

## **1.19 Useful or Effective Investigation Techniques**

1.19.1 None considered necessary for this investigation.

## **2. ANALYSIS**

2.1 On 12 February 2013 at approximately 1020Z, the pilot onboard ZS-OLR departed from Cape Town International Airport en-route to Fisantekraal Airfield after carrying out a pre-flight inspection and had 57 litres of Avgas added to the existing contents of 60 litres. During his routine checks, the pilot noticed that the main tank was approaching  $\frac{1}{4}$  and therefore decided to change the fuel selector to the wing tanks after the touch and go to draw from the tanks with the largest quantity.

2.2 The pilot completed 3 successful touch and goes at Fisantekraal airfield before continuing on to Stellenbosch Airfield. On departure from the 3rd touch and go, the pilot commenced a left climbing turn towards Stellenbosch. During the climb at about 800 feet, the pilot moved the fuel selector through 180° to rectify his mistake and turned on the electrical boost pump. The pilot realised that he had actually moved the selector to the OFF position. He attempted to unlock the selector several times, but without success.





Fig. 7 Fuel selector in the OFF position

- 2.3 He was not close enough to an airfield and therefore opted to attempt an emergency landing in a clearing bounded by small trees. The aircraft collided with the trees just above ground level.
- 2.4.1 The fuel tanks ruptured and there was evidence of fuel spillage at the accident site. There was still sufficient fuel in the centre tank to obtain a fuel sample. The fuel sample showed evidence of microbial contamination, however this did not contribute to the cause of the accident.
- 2.5 The aircraft was recovered to a hangar at Cape Town International Airport, General Aviation Area.
- 2.6 When interviewed, the pilot admitted to turning the fuel selector into the incorrect position. He immediately realised his mistake and despite several attempts to rectify the situation, had no success.
- 2.6.1 Upon further investigation, it was found that the fuel selector is not in a very accessible location. It is also extremely difficult to turn the selector out of the OFF position as the spring load is extremely tight.

### 3. CONCLUSION

#### 3.1 Findings

- 3.1.1 The aircraft had a valid Certificate of Airworthiness and Certificate of Registration.
- 3.1.2 There was no evidence of any defect or malfunction in the aircraft that could have contributed to the accident.
- 3.1.3 All control surfaces were accounted for, and all damage to the aircraft was attributed to the impact forces.
- 3.1.4 The aircraft was substantially damaged.
- 3.1.5 The position of the fuel selectors could be determined and was found in the off position.

- 3.1.6 The fuel sampled was of the proper grade and quality, but contained slight microbial contamination. Microbial contamination was ruled out as a contributory factor for this accident.
- 3.1.7 The engine stopped from fuel starvation (usable fuel on board).
- 3.1.8 The pilot was licensed and qualified for the flight in accordance with existing regulations.
- 3.1.9 The pilot's actions and statements indicated that his knowledge and understanding of the aircraft systems was adequate.
- 3.1.13 The aircraft was not equipped with the flight data recorder (FDR) or a cockpit voice recorder (CVR), neither was required by regulation.
- 3.1.14 There was no evidence that the pilot suffered any sudden illness or incapacity which might have affected his/her ability to control the aircraft.
- 3.1.15 The accident was considered survivable.
- 3.1.16 Good weather conditions prevailed on the day of the accident and weather was not considered a contributory factor to the accident.

### **3.2 Probable Cause/s**

- 3.2.1 Unsuccessful forced landing due to fuel starvation.
- 3.2.2 Poor technique.

## **4. SAFETY RECOMMENDATIONS**

- 4.1 None.

## **5. APPENDICES**

- 5.1 None

Compiled by:

Natasha Apollis

.....  
**For: Director of Civil Aviation**

Date: .....

Investigator-in-charge: Natasha Apollis

Date: .....

Co-Investigator: Not applicable

Date: .....