AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:	CA18/2/3/8704		
Aircraft Registration	**ZU-COX**	**Date of Accident**	08/11/2009		**Time of Accident**	0920Z	
Type of Aircraft	Jabiru SP		**Type of Operation**		Training		
Pilot-in-command Licence Type	Instructor		**Age**	39	**Licence Valid**	yes	
Pilot-in-command Flying Experience	Total Flying Hours		189.3		Hours on Type	137.7	
Last point of departure	Kitty Hawk Aero Estate (FAKT) in the Gauteng Province						
Next point of intended landing	Rhino Park Airfield in the Gauteng Province						
Location of the accident site with reference to easily defined geographical points (GPS readings if possible)							
Runway 27 at Rhino Park Airfield S25˚ 49.594' E028˚ 32.264'							
Meteorological Information	Wind 330˚ 20kts. Visibility CAVOK.						
Number of people on board	1+1	**No. of people injured**	0	**No. of people killed**	0		

Synopsis

The instructor and student pilot took off from Kitty Hawk Aero Estate (FAKT) on a training flight to Rhino Park Aero Estate (FAKT).

During the final approach to do a touch and go on runway 27, the aircraft encountered two severe gusts of wind.

The second gust of wind caused the aircraft to roll to the left and crash into some rocks with the left main gear.

The aircraft cartwheeled and then came to a stop in an upright position.

The instructor and the student pilot were not injured. However, the aircraft was destroyed in the accident.

Probable Cause

The aircraft was operated in crosswinds that exceed the aircraft's maximum crosswind component.

IARC Date		Release Date	

AIRCRAFT ACCIDENT REPORT

Name of Owner/Operator : T.J. Flight Services/Light Sport Aviation
Manufacturer : Jabiru
Model : SP
Nationality : South African
Registration Marks : ZU-COX
Place : Rhino Park Airfield
Date : 8 November 2009
Time : 0920Z

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 History of Flight

1.1.1 The instructor and the student pilot took off from Kitty Hawk Aero Estate (FAKT) on a training flight to Rhino Park Aero Estate (FAKT).

1.1.2 During the final approach to do a touch and go on runway 27, the aircraft encountered a severe gust of wind. The student pilot then called for a go-around and applied full power at approximately 20 ft (AGL) for the go-around. The flaps were then raised from landing flaps (flaps 2) to approach flaps (flaps 1) to decrease drag and increase speed while maintaining a height of approximately 20 ft (AGL).

1.1.3 The aircraft then encountered another severe gust of wind from right to left which pushed it toward the left shoulder of the runway. The student pilot applied full right rudder in an effort to counteract the gust of wind.

1.1.4 This second gust of wind from the right lifted the right wing and caused the aircraft to roll to the left. The aircraft lost altitude and the left main gear collided with rocks, causing the aircraft to cartwheel over the rocks.

1.1.5 The aircraft came to a stop in an upright position adjacent to a runway which was under construction.

1.1.6 The student pilot and instructor were not injured during the accident sequence.

1.2 Injuries to Persons

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

1.3 Damage to Aircraft

1.3.1 The aircraft was destroyed in the accident sequence.

Figure 1 showing aircraft wreckage at accident site

1.4 Other Damage

1.4.1 No other damage occurred.

1.5 Personnel Information

Instructor

Nationality	South African	Gender	male	Age	39
Licence Number	xxxxxxxxxxx	Licence Type	Instructor		
Licence valid	Yes	Type Endorsed	Yes		
Ratings	Instructor grade 3. Instrument rating (A). Flight tests-single engine piston. Night rating				
Medical Expiry Date	31/03/2010				
Restrictions	No restrictions				
Previous Accidents	None				

Flying Experience:

Total Hours	189.3
Total Past 90 Days	87.0
Total on Type Past 90 Days	77.1
Total on Type	137.7

Student

Nationality	South African	Gender	male	Age	45
Licence Number	xxxxxxxxxxx	Licence Type	Student		
Licence valid	Yes	Type Endorsed	Yes		
Ratings	None				
Medical Expiry Date	30/09/2010				
Restrictions	No restrictions				
Previous Accidents	None				

Flying Experience:

Total Hours	25.3
Total Past 90 Days	25.3
Total on Type Past 90 Days	25.3
Total on Type	25.3

1.6 Aircraft Information

Airframe:

Type	Jabiru SP	
Serial Number	409	
Manufacturer	Shadow Lite cc	
Date of Manufacture	2000	
Total Airframe Hours (At time of Accident)	3034.5	
Last MPI (Date & Hours)	2009/02/11	3004.5
Hours since Last MPI	30	
Authority to fly (Issue Date)	2009/06/12	
C of R (Issue Date) (Present owner)	2008/04/16	
Operating Categories	Private flying and general training	

Engine:

Type	Jabiru 2200
Serial Number	22A717
Hours since New	528.6
Hours since Overhaul	TBO not reached yet

Propeller:

Type	Jabiru
Serial Number	JJ42883LC
Hours since New	440.5
Hours since Overhaul	TBO not reached yet

Aircraft Performance

1.6.1 The maximum crosswind velocity listed in the Jabiru SP owner's manual is 14kts.

1.7 Meteorological Information

1.7.1 The student pilot stated in the pilot's questionnaire that he obtained a weather forecast from the Johannesburg Meteorology office prior to the flight.

1.7.2 The following information was taken from the student pilot's questionnaire.

Wind direction	330°	Wind speed	20 kts	Visibility	CAVOK
Temperature	n/a	Cloud cover	none	Cloud base	none
Dew point	n/a				

1.8 Aids to Navigation

1.8.1 The aircraft was equipped with standard navigation equipment which was serviceable at the time of the accident.

1.9 Communications

1.9.1 The aircraft was equipped with standard communications equipment which was serviceable at the time of the accident.

1.9.2 The pilot was communicating his intentions on the tower frequency 135.6 MHz

1.10 Aerodrome Information

Aerodrome Location	Rhino Park	
Aerodrome Co-ordinates	S25° 49.594 E028° 32.264	
Aerodrome Elevation	4784ft	
Runway Designations	09/27	03/21
Runway Dimensions	850m x 20m	450m x 20m
Runway Used	Runway 27	
Runway Surface	gravel	
Approach Facilities	None	

1.10.1 Information about the airfield contained in the Electronic Airfield Directory warns of downdrafts in the intersection of runway 03/21 and that a runway is under construction.

1.10.2 The Rhino Park airfield is not a registered airfield and is therefore not required by applicable regulations to issue a NOTAM stating that there is a runway under construction.

1.11 Flight Recorders

1.11.1 The aircraft was not fitted with a Cockpit Voice Recorder (CVR) or a Flight Data Recorder (FDR) and neither was required by regulations to be fitted to this type of aircraft.

1.12 Wreckage and Impact Information

1.12.1 The accident occurred adjacent to runway 27 at Rhino Park airfield.

1.12.2 During the final approach for runway 27 to do a touch and go, the aircraft encountered a severe gust of wind.

1.12.3 A second gust of wind from the right lifted the right wing and caused the aircraft to roll to the left. The aircraft lost altitude and the left main gear collided with a pile of rocks, causing the aircraft to cartwheel over the rocks between runway 27 and the runway under construction.

1.12.4 The left wing separated from the aircraft during the accident sequence and was found lying approximately 5 m from the aircraft.

1.12.5 The aircraft came to a stop in an upright position adjacent to a runway which was under construction.

1.12.6 The aircraft was destroyed in the accident sequence.

1.13 Medical and Pathological Information

1.13.1 The instructor and pilot did not sustain any injuries.

1.14 Fire

1.14.1 There was no fire reported in flight or on the ground.

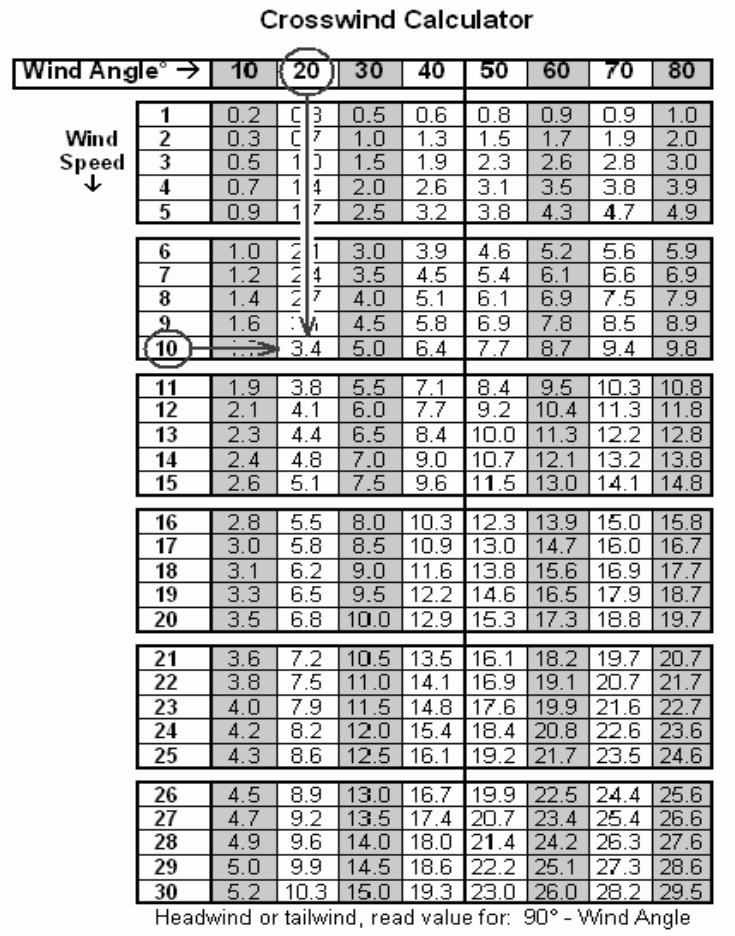
1.15 Survival Aspects

1.15.1 The accident was deemed survivable due to the low impact forces and the fact that both occupants of the aircraft were properly restrained.

1.16 Tests and Research

1.16.1 Crosswind calculator chart.

First, locate the wind angle value (20) in the top row of the calculator. Next, use your finger to trace straight down that column until you arrive at the row corresponding to the wind speed (10). The number in the box at the intersection is the answer. In this example, the crosswind component is 3.4 knots.



Crosswind Calculator

Wind Angle° →	10	20	30	40	50	60	70	80
Wind Speed ↓ 1	0.2	0.3	0.5	0.6	0.8	0.9	0.9	1.0
2	0.3	0.7	1.0	1.3	1.5	1.7	1.9	2.0
3	0.5	1.0	1.5	1.9	2.3	2.6	2.8	3.0
4	0.7	1.4	2.0	2.6	3.1	3.5	3.8	3.9
5	0.9	1.7	2.5	3.2	3.8	4.3	4.7	4.9
6	1.0	2.1	3.0	3.9	4.6	5.2	5.6	5.9
7	1.2	2.4	3.5	4.5	5.4	6.1	6.6	6.9
8	1.4	2.7	4.0	5.1	6.1	6.9	7.5	7.9
9	1.6	[illegible]	4.5	5.8	6.9	7.8	8.5	8.9
10	[illegible] →	3.4	5.0	6.4	7.7	8.7	9.4	9.8
11	1.9	3.8	5.5	7.1	8.4	9.5	10.3	10.8
12	2.1	4.1	6.0	7.7	9.2	10.4	11.3	11.8
13	2.3	4.4	6.5	8.4	10.0	11.3	12.2	12.8
14	2.4	4.8	7.0	9.0	10.7	12.1	13.2	13.8
15	2.6	5.1	7.5	9.6	11.5	13.0	14.1	14.8
16	2.8	5.5	8.0	10.3	12.3	13.9	15.0	15.8
17	3.0	5.8	8.5	10.9	13.0	14.7	16.0	16.7
18	3.1	6.2	9.0	11.6	13.8	15.6	16.9	17.7
19	3.3	6.5	9.5	12.2	14.6	16.5	17.9	18.7
20	3.5	6.8	10.0	12.9	15.3	17.3	18.8	19.7
21	3.6	7.2	10.5	13.5	16.1	18.2	19.7	20.7
22	3.8	7.5	11.0	14.1	16.9	19.1	20.7	21.7
23	4.0	7.9	11.5	14.8	17.6	19.9	21.6	22.7
24	4.2	8.2	12.0	15.4	18.4	20.8	22.6	23.6
25	4.3	8.6	12.5	16.1	19.2	21.7	23.5	24.6
26	4.5	8.9	13.0	16.7	19.9	22.5	24.4	25.6
27	4.7	9.2	13.5	17.4	20.7	23.4	25.4	26.6
28	4.9	9.6	14.0	18.0	21.4	24.2	26.3	27.6
29	5.0	9.9	14.5	18.6	22.2	25.1	27.3	28.6
30	5.2	10.3	15.0	19.3	23.0	26.0	28.2	29.5

Headwind or tailwind, read value for: 90° - Wind Angle

1.16.2 In the accident involving ZU-COX, the wind direction was 330˚. The runway used was runway 27. The angle between runway 27 and the wind direction was 60˚. The wind velocity was 20kts. The wind angle value (60˚) can be found in the top row of the calculator. The crosswind component can be read off where the value column intersects with the row corresponding to the wind speed (20). In this accident, the crosswind component was 17.3 knots.

1.17 Organizational and Management Information

1.17.1 The aircraft was operated by an approved aviation training organisation.

1.17.2 The aircraft was maintained by an approved aircraft maintenance organisation

1.17.3 The ATO was issued with an approval certificate by the regulator on the 1st April 2009 with an expiry date of 26 April 2010.

1.18 Additional Information

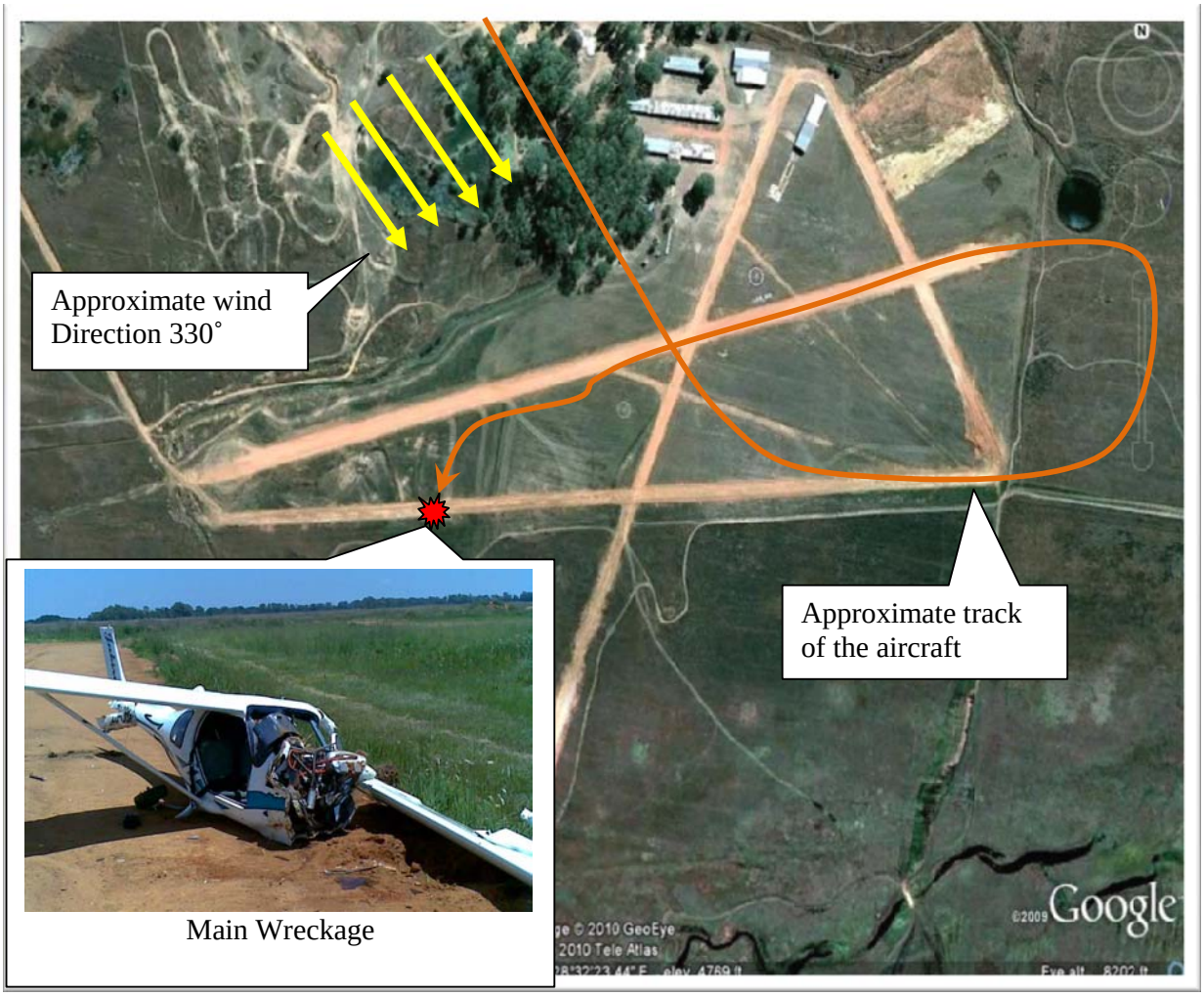


Figure 2 showing aircraft track until impact.

1.19 Useful or Effective Investigation Techniques

1.19.1 None.

2. ANALYSIS

2.1 The instructor stated in the pilot's questionnaire that he obtained a weather forecast from the Johannesburg Meteorology office stating that the wind speed was 20 knots. The maximum crosswind velocity listed in the Jabiru SP owner's manual is 14kts.

2.2 Information about the airfield contained in the Electronic Airfield Directory warns of downdrafts in the intersection of runway 03/21 and the runway under construction.

2.3 The aircraft was flown above runway 27 at an altitude of approximately 20 ft (AGL)

with the intention of performing a touch and go. The first gust of wind pushed the aircraft to the left of the runway just as the aircraft passed a clump of tall trees to the left of the runway. These trees acted as a barrier for the wind, which was blowing almost perpendicular to the flight path of the aircraft.

2.4 The second gust of wind, accompanied by a downdraft at the intersection of runway 03/21 and the runway under construction, pushed the aircraft further off the runway in the direction of the runway under construction. The downdraft prevented the aircraft from climbing despite full power being applied and takeoff flaps being selected.

2.5 The aircraft lost altitude and the left main gear collided with a pile of rocks, causing the aircraft to cartwheel over the rocks between runway 27 and the runway under construction.

2.6 The aircraft came to a stop in an upright position adjacent to the runway under construction.

3. CONCLUSION

3.1 Findings

3.1.1 The instructor was licensed and held the appropriate rating for the aircraft.

3.1.2 The ATO had a valid accreditation and approval certificate.

3.1.3 The aircraft had a valid authority to fly.

3.1.4 There was no evidence of any defect or malfunction in the aircraft prior to the accident that could have contributed to the accident.

3.1.5 The aircraft was structurally intact prior to hitting the pile of rocks in the accident sequence, as no aircraft debris was found prior to impact with the pile of rocks.

3.1.6 All damage to the aircraft could be attributable to severe impact forces.

3.1.7 The aircraft departed from controlled flight after colliding with a pile of rocks and hit the ground.

3.1.8 The aircraft was destroyed by impact forces.

3.1.9 The aircraft was operated in crosswinds that exceeded the aircraft's maximum crosswind component of 14 kts.

3.2 Probable Cause/s

3.2.1 The aircraft was operated in crosswinds that exceeded the aircrafts maximum crosswind component.

4. SAFETY RECOMMENDATIONS

It is recommended that the Director of Civil Aviation should:

4.1 Require the Air Safety Operations Division of the SACAA to strengthen the oversight of Approved Training Organisations so as to ensure that training is not conducted outside of the design limitations of the involved aircraft.

5. APPENDICES

5.1 None

Report reviewed and amended by the Advisory Safety Panel 19 October 2010.

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