SOUTH AFRICAN CIVIL AVIATION AUTHORITY

Section/division **Accident and Incident Investigations Division** Form Number: CA 12-12a

AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:	CA18/2/3/9786		
Aircraft Registration	ZU-DVO	**Date of Accident**	1 May 2019		**Time of Accident**	0902Z	
Type of Aircraft	Glasair II-S FT		**Type of Operation**		Private (Part 94)		
Pilot-in-command Licence Type	PPL		**Age**	41	**Licence Valid**	Yes	
Pilot-in-command Flying Experience	Total Flying Hours		583.16		Hours on Type	10.6	
Last point of Departure	Wings Park Aerodrome, Kwetyana, Eastern Cape						
Next point of Intended landing	East London Aerodrome, East London, Eastern Cape						
Location of the accident site with reference to easily defined geographical points (GPS readings if possible)							
Wings Park Aerodrome to the left of Runway 27 (32°49'46" South 027°49'46" East)							
Meteorological Information	Wind: 220°/5-10 knots, Temperature: 25°C, Dew Point: Unknown, Visibility: 9999m, Clouds: BKN at: 4900ft, QNH: Unknown						
Number of People On-board	1 + 1	**No. of People Injured**	2	**No. of People Killed**	0		
Synopsis							

On Wednesday, 1 May 2019 at 0900Z, a pilot accompanied by a passenger had planned to depart from Wings Park Aerodrome in the Eastern Cape province on a private flight to East London Aerodrome (FAEL).

The pilot lined up the aircraft for take-off on Runway 27 and begun the take-off roll. However, during the take-off roll, the pilot was unable to keep the aircraft on the runway centre line. The aircraft began drifting to the left of the runway. As the pilot rotated the aircraft, it rolled to the left and the left wing scraped the runway surface. The aircraft continued rotating, however, it impacted vegetation lining the left of Runway 27 during a climb before it lost height and crashed. The aircraft came to rest on an adjacent field on the left of Runway 27.

The pilot exited the aircraft unassisted while the passenger had to be assisted by a witness.

The aircraft was destroyed during the accident sequence; both occupants sustained injuries and were taken to the hospital.

The flight was conducted in visual meteorological conditions (VMC) by day.

The investigation revealed that the pilot lost directional control of the aircraft during the take-off roll. As the pilot rotated the aircraft, it rolled to the left, resulting in the left wing scraping the runway surface. However, the aircraft continued to rotate, and during the initial climb phase, the left wing impacted the trees lining the left of the runway and the pilot lost control of the aircraft and crashed.

SRP Date	11 October 2019	Publication Date	17 October 2019

ABBREVIATION	DESCRIPTION
AIID	Accidents and Incidents Investigation Division
AMSL	Above mean sea level
AOPA	Aircraft Owners and Pilots Association
BKN	Broken Cloud (5-7 Octas)
CAR	Civil Aviation Regulations
CAVOK	Ceiling and Visibility OK
COR	Certificate of Registry
CRS	Certificate of Release to Service
CVR	Cockpit Voice Recorder
FAEL	East London Aerodrome
FDR	Flight Data Recorder
GPS	Global Positioning System
m	Metre
MHz	Megahertz
MPI	Mandatory Periodic Inspection
PIC	Pilot-in-Command
POH	Pilot's Operating Handbook
PPL	Private Pilot Licence
SACAA	South African Civil Aviation Authority
UTC	Co-ordinated Universal Time
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions

Reference Number	**:** CA18/2/3/9786
Name of Owner	**:** ZUDVO Syndicate
Manufacturer	**:** Chorosz Gilbert
Model	**:** Glasair Super II-S FT
Nationality	**:** South African
Registration Marks	**:** ZU-DVO
Place	**:** Wings Park Aerodrome, Eastern Cape
Date	**:** 1 May 2019
Time	**:** 0900Z

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 (CAR) 2011, 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 apportion blame or liability****.*

Investigations process:

The accident was notified to the Accident and Incident Investigations Division (AIID) on 1 May 2019 at approximately 0902Z. No investigators were dispatched to the accident scene. The investigator/s co-ordinated with all authorities on site by initiating the accident investigation process according to CAR Part 12 and investigation procedures. The AIID of the South African Civil Aviation Authority (SACAA) is leading the investigation as the Republic of South Africa is the State of Occurrence.

Notes:
1. Whenever the following words are mentioned in this report, they shall mean the following:

- *Accident — this investigated accident*
- *Aircraft — the Glasair II-S FT involved in this accident*
- *Investigation — the investigation into the circumstances of this accident*
- *Pilot — the pilot involved in this accident*
- *Report — this accident report*

2. Photos and figures used in this report are taken from different sources and may be adjusted from the original for the sole purpose of improving the clarity of the report. Modifications to images used in this report are limited to cropping, magnification, file compression or enhancement of colour, brightness, contrast or addition of text boxes, arrows or lines.

Disclaimer:

1. FACTUAL INFORMATION

1.1. History of Flight

1.1.1 On 1 May 2019, at 0900Z, a pilot accompanied by a passenger departed from Wings Park Aerodrome, near East London in the Eastern Cape, on a private flight to East London Aerodrome (FAEL). The flight was conducted in accordance with Part 94 (Operation of non-type certificated aircraft) of the Civil Aviation Regulations (CAR) 2011.

1.1.2 Prior to departure, the pilot uplifted 200 litres of Avgas fuel (total fuel on-board was 230 litres) and, on completion, taxied the aircraft to the threshold of Runway 27. The pilot then lined up for take-off on Runway 27 and began the take-off roll. An eyewitness stated that during the take-off roll, the aircraft had been unable to stay on the runway centre line and kept drifting to the left (of the runway). Another eyewitness at the scene stated that as the aircraft began to rotate, the nose gear and the right main gear were off the ground, but the left main gear remained in contact with the runway surface; the aircraft rolled to the left and the left wing scraped the runway surface. However, the pilot continued with the rotation and the aircraft drifted to the left as it climbed before impacting trees lining the left of the runway. The aircraft was airborne for approximately 155 metres (m) from the point of impact with the trees before it crashed. It came to rest in an adjacent field on the left of Runway 27.

1.1.3 The pilot exited the aircraft unassisted while the passenger required assistance from a witness to exit the aircraft.

1.1.4 The aircraft was destroyed in the accident sequence; both the pilot and the passenger sustained serious injuries and were taken to the hospital.

1.1.5 The flight was conducted in visual meteorological conditions (VMC) by day with fine weather conditions.

1.1.6 The location of the accident was at Global Positioning System (GPS) co-ordinates 32°49’46” South 027°46’46” East, at an elevation of 380 feet above mean sea level (AMSL).

Figure 1: Image of the accident aircraft prior to the accident. (Source: www.jetphotos.com, Austin Ferreira)

1.2. Injuries to Persons

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

1.3. Damage to Aircraft

1.3.1 The aircraft was destroyed during the accident sequence.

Figure 2: Front view of the damage sustained by the aircraft. (Picture: Rob Williamson)

Figure 3: Side view of the damage sustained by the aircraft. (Picture: Rob Williamson)

1.4. Other Damage

1.4.1 None.

1.5 Personnel Information

Nationality	South African	Gender	Male	Age	41
Licence Number	**********	Licence Type	Private Pilot Licence		
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	Night				
Medical Expiry Date	30 April 2020				
Restrictions	None				
Previous Accidents	None				

1.5.1 The pilot held a class 2 aviation medical certificate, issued on 13 April 2018, with an expiry date of 30 April 2020. This certificate was issued with no limitations.

1.5.2 The pilot also held a valid private pilot licence which was initially issued on 20 August 1999 and due to expire on 30 April 2020. The last skills test was conducted on 22 April 2018. The pilot held the required type and class rating to operate the aircraft.

1.5.3 Flying Experience:

Total Hours	583.16
Total Past 90 Days	23.65
Total on Type Past 90 Days	1.95
Total on Type	10.6

1.6 Aircraft Information

1.6.1 The aircraft Pilot Operating Handbook (POH) describes the aircraft as: "*The Glasair Super ll-S FT is a two-place, low-wing aircraft that features fixed tricycle landing gear and an airframe made entirely from female-moulded fiberglass composite components. The Glasair is designed to provide the highest utility possible in a home-built aircraft. The aerodynamically clean airframe is responsible for the Glasair's high top speed and its exceptional operating efficiency. The excellent high speed performance is complemented by good slow flight characteristics and an honest, predictable stall. The rugged landing gear permits operation from rough, short fields. The Glasair Super ll-S FT's comfortable side-by-side seating, ample baggage capacity and good range make it an unparalleled cross-country traveller. Thanks to the light, responsive controls, sport aerobatics in the Glasair are pure delight. The integration of all these capabilities in a single aircraft makes the Glasair Super ll-S FT the ultimate in performance and versatility."*

Airframe:

Type	Glasair Super II-S FT	
Serial Number	2251-47	
Manufacturer	Chorosz Gilbert	
Date of Manufacture	1995	
Total Airframe Hours (At time of Incident)	1548	
Last MPI (Date & Hours)	27 June 2018	1530.2
Hours Since Last MPI	17.8	
Authority to Fly (Issue and Expiry Date)	29 June 2018	26 June 2019
C of R (Issue Date) (Present owner)	19 June 2017	
Operating Categories	Standard	

1.6.2 The aircraft had a total of 230 litres of Avgas fuel in its tank and had no listed defects in the flight folio prior to departure. The maximum fuel capacity for this aircraft is 428 litres.

Engine:

Type	Lycoming IO-360
Serial Number	L26232-5IA
Hours Since New	1548
Hours Since Overhaul	TBO not reached

Propeller:

Type	MT Propeller
Serial Number	98076
Hours since New	1568.8
Hours since Overhaul	218.9

1.7 Meteorological Information

1.7.1 The weather conditions reported by the pilot prior to departure are stated in the table below.

Wind Direction	220°	Wind Speed	5-10 knots	Visibility	9999m
Temperature	25°C	Cloud Cover	BKN	Cloud Base	4900ft
Dew Point	Unknown	QNH	Unknown		

1.7.2 The pilot had not obtained an official weather forecast prior to departure. The flight was conducted in day light conditions with visual flight rules (VFR) conditions prevailing.

1.8 Aids to Navigation

1.8.1 The aircraft was equipped with standard navigational equipment as approved by the Regulator (SACAA) for the aircraft type. There were no recorded defects with the navigational equipment prior to the flight.

1.9 Communication

1.9.1 The aircraft was equipped with standard communication equipment as approved by the Regulator for the aircraft type. There were no recorded defects with the navigational equipment prior to the flight.

1.9.2 The frequency in use for the aerodrome was 125.2 megahertz (MHz).

1.10 Aerodrome Information

1.10.1 Wings Park Aerodrome is unmanned and is an unregistered aerodrome.

Aerodrome Location	East London, Eastern Cape	
Aerodrome Co-ordinates	32°49’46” South 027°49’46” East	
Aerodrome Elevation	380 feet above mean sea level (AMSL)	
Runway Designations	27/09	22/04
Runway Used	27	
Runway Dimensions	850m x 25m	
Runway Surface	Grass surface	
Approach Facilities	None	

Figure 4: Google Earth map showing the layout Wings Park Aerodrome.

1.11 Flight Recorders

1.11.1 The aircraft was neither equipped with a flight data recorder (FDR) nor a cockpit voice recorder (CVR), nor was it required by regulation to be fitted to the aircraft type.

1.12 Wreckage and Impact Information

1.12.1 The pilot had elected to use the full length of Runway 27 for take-off. The length of Runway 27 is 850m. According to the POH and based on the aircraft's weight and balance, as well as weather conditions, the aircraft required 333m for take-off.

1.12.2 During the take-off roll, the aircraft drifted to the left of the runway centre line. The runway is partially lined by trees on both sides and this deviation in runway heading may limit the clear path ahead of the aircraft during take-off.

1.12.3 As the aircraft rotated, the left wing scraped the ground, causing it (aircraft) to drift further to the left. The aircraft continued with rotation and was able to get airborne before the left wing impacted the trees parallel to the runway.

1.12.4 The aircraft remained airborne for a further 155m from the point of impact with the trees before it lost height and crashed.

1.12.5 The aircraft came to rest facing a northerly direction on a field to the left side of Runway 27, approximately 80m to the left of the runway centre line. The aircraft was destroyed on impact. The accident occurred in the perimeter of the aerodrome.

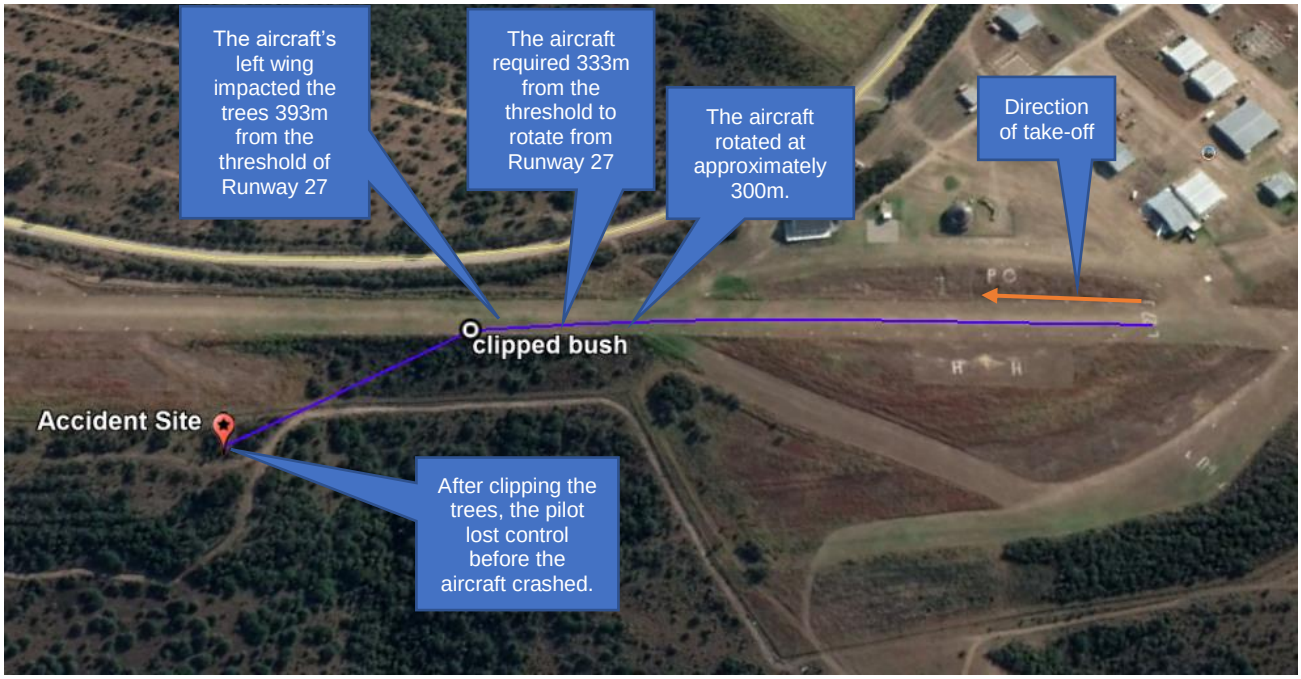

Figure 5: Google Earth map showing the direction of take-off using Runway 27.

1.13 Medical and Pathological Information

1.13.1 None.

1.14 Fire

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

1.15 Survival Aspects

1.15.1 The accident was considered not survivable as the damage to the cabin/cockpit area caused serious injuries to both the pilot and the passenger.

1.16 Tests and Research

1.16.1 None.

1.17 Organisational and Management Information

1.17.1 The flight was conducted as a private flight in accordance with Part 94 (Operation of Non-Type Certificated Aircraft) of the CAR 2011 as amended.

1.17.2 The aircraft maintenance organisation which carried out the last maintenance on the aircraft held the necessary Part 145 approval certificate that was issued on 25 February 2019 and due to expire on 29 February 2020.

1.18 Additional Information

1.18.1 None.

1.19 Useful or Effective Investigation Techniques

1.19.1 None.

2. ANALYSIS

The following analysis was made with respect to this accident. These shall not be read as apportioning blame or liability to any organisation or individual.

2.1 The pilot was issued a valid private pilot licence which was initially issued on 20 August 1999 and due to expire on 30 April 2020. The last skills test was conducted on 22 April 2018. The pilot held the required type and class rating to operate the aircraft. The pilot had completed the conversion to the aircraft type on 29 May 2017 and had accumulated a total of 10.6 hours on type, of which 1.95 hours were accumulated in the last 90 days before the accident flight. The pilot had a total 583.16 hours which included time on high performance aircraft. The passenger also held a private pilot licence.

2.2 The pilot was issued with a class 2 aviation medical certificate on 13 April 2018 with an expiry date of 30 April 2020 and had no limitations.

2.3 The aircraft was serviceable at the time of the accident and there were no reported defects that may have contributed to the accident. The aircraft had enough fuel on-board for the operation. The certificate of release to service and the authority to fly were both valid at the time of the accident. The last annual inspection was carried out on 27 June 2018 at 1530.2 hours and the aircraft had flown 17.8 hours since.

2.4 The weather at the time of the accident was VMC with no reports of any significant conditions that may have adversely affected the operation of the aircraft. Visibility was 9999m and the wind was 220° at 5-10 knots.

2.5 Wings Park Aerodrome is an unlicensed, unmanned aerodrome. Runway 27 was used for the departure. The runway is a prepared grass type with a length of 850m and a width of 25m. The pilot had operated from the aerodrome on multiple occasions in the past and was familiar with the layout and operations at the aerodrome.

2.6 During the take-off roll, the aircraft was unable to stay on the runway centre line and it kept drifting to the left of the runway. An eyewitness stated that as the aircraft rotated, the left wing scraped the runway surface approximately 300m from the threshold. Due to the left wing scraping the runway, the aircraft lost airspeed and directional control and further veered to the left. The pilot elected to continue with the take-off despite having more than 500m of runway remaining to abort. Due to not maintaining runway heading after the take-off roll, the aircraft's left wing impacted trees lining the left side of the runway, causing a further depletion of airspeed. The aircraft continued on its path for approximately 155m after impact with the trees before it crashed in a nose-down attitude.

2.7 Both occupants sustained serious injuries and were transported to the hospital by ambulance. The pilot was able to evacuate the aircraft unassisted, while the passenger required assistance to be extracted from the wreckage. During the extraction of the passenger, the aircraft sustained further damage.

2.8 The investigation revealed that the pilot lost directional control of the aircraft during the take-off roll. As the pilot rotated the aircraft, it rolled to the left, resulting in the left wing scraping the runway surface. However, the aircraft continued to rotate, and during the initial climb phase, the left wing impacted the trees lining the left of the runway and the pilot lost control of the aircraft and crashed.

3. CONCLUSION

3.1. General

From the evidence available, the following findings, causes and contributing factors were made with respect to this accident. These shall not be read as apportioning blame or liability to any organisation or individual.

To serve the objective of this investigation, the following sections are included in the conclusions heading:

- **Findings —** are statements of all significant conditions, events or circumstances in this Accident. The findings are significant steps in this Accident sequence, but they are not always causal or indicate deficiencies.
- **Causes —** are actions, omissions, events, conditions, or a combination thereof, which led to this Accident.
- **Contributing factors —** are actions, omissions, events, conditions, or a combination thereof, which, if eliminated, avoided or absent, would have reduced the probability of the accident or incident occurring, or mitigated the severity of the consequences of the accident or incident. The identification of contributing factors does not imply the assignment of fault or the determination of administrative, civil or criminal liability.

3.2. Findings

3.2.1 The pilot was initially issued with a private pilot licence on 20 August 1999 with an expiry date of 30 April 2020. The last skills test was carried out on 22 April 2018 with an expiry date of 30 April 2019. The pilot flew a total of 10.6 hours on type since

completing the conversion to the aircraft type on 30 May 2017.

3.2.2 The pilot's class 2 aviation medical certificate was issued on 13 April 2018 with an expiry date of 30 April 2020 and had no limitations.

3.2.3 The aircraft was issued with a certificate of release to service (CR) on 27 June 2018 with an expiry date of 26 June 2019 or at 1630.2 airframe hours, whichever occurs first. The last maintenance check carried out was an annual inspection at 1530.2 hours on 27 June 2018.

3.2.4 The aircraft had flown a total of 17.8 hours since its last inspection. There were no recorded defects prior to the accident flight.

3.2.5 The aircraft was issued with an authority to fly on 29 June 2018 with an expiry date of 26 June 2019.

3.2.6 The aircraft was destroyed on impact during the accident.

3.2.7 Both occupants sustained serious injuries and were taken to the hospital.

3.2.8 The flight was conducted in VMC by day. Fine weather conditions prevailed on the day.

3.2.9 Wings Park Aerodrome is an unlicensed, unmanned aerodrome. The runway used for the take-off was Runway 27 which is approximately 850m long and 25m wide. The runway has a prepared grass surface.

3.2.10 The investigation revealed that the pilot lost directional control of the aircraft during the take-off roll. As the pilot rotated the aircraft, it rolled to the left, resulting in the left wing scraping the runway surface. However, the aircraft continued to rotate, and during the initial climb phase, the left wing impacted the trees lining the left of the runway and the pilot lost control of the aircraft and crashed.

3.3. Probable Cause

3.3.1 The pilot lost directional control of the aircraft during the take-off roll. As the pilot rotated the aircraft, it rolled to the left, resulting in the left wing scraping the runway surface. However, the aircraft continued to rotate, and during the initial climb phase, the left wing impacted the trees lining the left of the runway and the pilot lost control of the aircraft and crashed.

4. SAFETY RECOMMENDATIONS

4.1. General

The safety recommendations listed in this report are proposed according to paragraph 6.8 of Annex 13 to the Convention on International Civil Aviation and are based on the conclusions listed in heading 3 of this Report; the AIID expects that all safety issues identified by the Investigation are addressed by the receiving States and organisations.

4.2. Safety Recommendation/s

4.2.1 None.

5. APPENDICES

5.1 None.