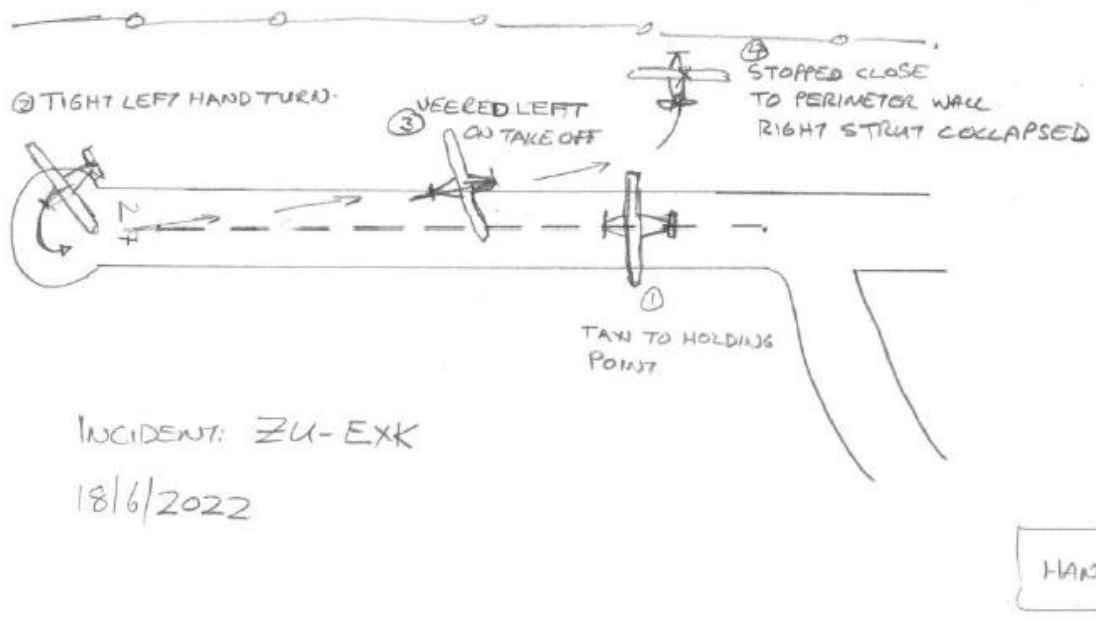


**LIMITED OCCURRENCE INVESTIGATION REPORT – FINAL**

<b>Reference Number</b>	CA18/2/3/10175							
<b>Classification</b>	Accident	<b>Date</b>	18 June 2022			<b>Time</b>	1015Z	
<b>Type of Operation</b>	Operation of Non-type Certificated Aircraft (Part 94)							
<b>Location</b>								
Place of Departure	Bundu Fly-Inn Estate Aerodrome, Gauteng Province			Place of Intended Landing	Grasslands Aerodrome, Gauteng Province			
Place of Occurrence	Left of Runway 27 at Bundu Fly-Inn Estate Aerodrome							
GPS Co-ordinates	Latitude	25°39'19.86" S	Longitude	028°02'01.16" E	Elevation	4 352ft		
<b>Aircraft Information</b>								
Registration	ZU-EXK							
Make; Model; S/N	Ekolot, KR-030 Topaz (Serial Number: 30-01-07)							
Damage to Aircraft	Substantial			Total Aircraft Hours	731.0			
<b>Pilot-in-command</b>								
Licence Type	National Pilot Licence			Gender	Male		Age	59
Licence Valid	Yes	Total Hours	188.6		Total Hours on Type	28.2		
Total Hours: 90 Days	14.5			Total Flying Hours on Type: Past 90 Days	9.6			
<b>People On-board</b>	1 + 0	<b>Injuries</b>	0	<b>Fatalities</b>	0	<b>Other (on ground)</b>	0	
<b>What Happened</b>								
<p>On Saturday morning, 18 June 2022, a pilot on-board the Ekolot KR-030 Topaz aircraft with registration ZU-EXK departed Grasslands Aerodrome for Bundu Fly-Inn Aerodrome where he spent some time with his friends. Both aerodromes are located in Gauteng province. The flight was conducted under the provisions of Part 94 of the Civil Aviation Regulations (CAR) 2011 as amended.</p> <p>Later the same day, the pilot prepared for his return flight to Grasslands Aerodrome. After start-up, he taxied and backtracked along the runway to the threshold of Runway 27 as the prevailing wind was from the west (on the nose side). He then executed a 180° turn to the left in the turning circle at the threshold of the runway to line up the aircraft for take-off.</p> <p>During the initial phase of the take-off roll, the aircraft veered off to the left-side of the runway centreline, which the pilot was able to correct. However, shortly thereafter, the aircraft veered off to the left-side again; this time, departing the runway surface and onto the grass area at 90° to the runway heading in a southerly direction. The pilot managed to turn the aircraft to the right to avoid impacting a concrete perimeter wall. Following this input/action, the right main gear strut collapsed and folded underneath the fuselage. The right-wing tip contacted the ground, which caused the outer section of the wing tip area to delaminate. The pilot was not injured during the accident sequence.</p>								



**Diagram 1:** The sketch of the occurrence as supplied by the pilot.



**Figure 1:** The location of the accident site (yellow pin) next to Runway 27. (Source: Google Earth)





**Figure 2:** The aircraft as it came to rest on the left-side of Runway 27. (Source: Pilot)



**Figure 3:** Aft view of the aircraft with the windsock in the yellow window. (Source: Pilot)

### The Pilot

The pilot was issued a National Pilot Licence (NPL) by the Regulator (SACAA) on 10 March 2020 with an expiry date of 6 February 2024. At the time of the accident, the pilot had flown a total of 188.6 hours of which 28.1 hours were on the aircraft type. He had flown 14.5 hours during the past 90 days of which 9.6 hours were on the aircraft type. The pilot had a valid Class 4 aviation medical certificate which was issued on 2 February 2022 and valid until 28 February 2025.

### The Aircraft

The aircraft, an Ekolot KR-030 Topaz, with serial number 30-01-07 was manufactured in 2007. The last annual inspection of the aircraft prior to the accident flight was carried out on 15 February 2022 at 716.4 airframe hours. A further 14.6 hours were flown with the aircraft since the annual inspection. The Authority to Fly was issued on 26 February 2020 with an expiry date of 28 February 2023. A Certificate of Registration was issued to the present owner on 3 August 2021. A Certificate of Release to Service was issued on 15 February 2022 with an expiry date of 14 February 2023 or at 816.4 airframe hours, whichever comes first.

The aircraft was involved in an accident on 11 September 2008 at Panorama Aerodrome when the pilot (another person) ground-looped the aircraft during the landing roll. The nose gear as well as the right main gear strut broke off during that accident sequence.

### Weather Information

Presented in the table below is the meteorological aerodrome report (METAR) data for Wonderboom Aerodrome (FAWB) at 1000Z on 18 June 2022. FAWB is located 10 nautical miles (nm) east of the Bundu Fly-Inn Estate Aerodrome. FAWB 181000Z 33003KT CAVOK 19/03 Q1021=

Wind Direction	330°	Wind Speed	3 knots	Visibility	> 10km
Temperature	19°C	Cloud Cover	Nil	Cloud Base	Nil
Dew Point	3°C	QNH	1021 hPa		

### The Bundu Fly-Inn Estate Aerodrome

The Bundu Fly-Inn Estate Aerodrome is an unlicensed facility located next to the N4 National Road (Platinum Highway) between Pretoria and Rustenburg, Gauteng province. It has a single asphalt runway orientated 09/27. The runway is 1 000 metres (m) long and 9m wide.



**Figure 4:** Damage caused to the fuselage where the right main gear strut was fitted. (Source: Pilot)

#### Post-accident inspection of the aircraft and follow-up investigation

The aircraft owner recovered the aircraft to his facility at Grasslands Aerodrome. After inspecting the aircraft, it was found that the nose gear steering rod was bent (see Figure 5).

The original equipment manufacturer (OEM) was contacted and asked if they ever had an occurrence in the past in which the nose gear steering rod got bent. The OEM's response was: *"There were several cases of such damage to this rod (in the 25-year period of production of our aircraft), but they were always caused by a hard landing, which consequently resulted in damage to the front landing gear."*

The OEM indicated that the steering rod was 8mm in diameter and was made of 1H18N9T stainless steel. It should be noted that 1H18N9T is the code for stainless steel produced in Poland, which is the State of Design and Manufacture for this aircraft.

According to the pilot, he did not have any hard landings with the aircraft since he had been the owner.





**Figure 5:** The yellow arrow indicates the bend in the nose gear steering rod. (Source: Pilot)



**Figure 6:** The yellow window indicates the inspection hole. (from Figure 5)

## Findings

- (i) The pilot was initially issued a National Pilot Licence on 10 March 2020 with an expiry date of 6 February 2024.
- (ii) The pilot had flown a total of 188.6 hours of which 28.1 hours were on the aircraft type.
- (iii) This flight was conducted under the provisions of Part 94 of the Civil Aviation Regulations 2011 as amended.
- (iv) The last maintenance inspection that was carried out on the aircraft prior to the accident flight was certified on 15 February 2022 at 716.4 airframe hours. A further 14.6 hours were flown since the inspection.
- (v) The aircraft was issued an Authority to Fly on 26 February 2020 with an expiry date of 28 February 2023.
- (vi) Post-accident inspection of the aircraft revealed the bent nose gear steering rod.
- (vii) Fine weather conditions with a light westerly wind prevailed at the time, indicated by the windsock in Figure 3.
- (viii) The aircraft sustained substantial damage during the accident sequence.
- (ix) No person was injured during the accident.
- (x) The aircraft was previously involved in an accident on 11 September 2008 at Panorama Aerodrome.

<b>Probable Cause</b>
Loss of directional control of the aircraft during the take-off roll which was most probably induced by the bent nose wheel steering rod.
<b>Contributing Factor</b>
The bend on the nose wheel steering rod most probably occurred when the aircraft turned left at the threshold of Runway 27 prior to lining up for take-off.
<b>Safety Action/s</b>
None.
<b>Safety Message and/or Safety Recommendation/s</b>
None.
<b>About this Report</b>
<p><i>The decision to conduct a limited investigate is based on factors, including whether the cause is known and the evidence supporting the cause is clear, the level of safety benefit likely to be obtained from an investigation and that will determine the scope of an investigation. For this occurrence, a limited investigation has been conducted, and the Accident and Incident Investigations Division (AIID) has relied on the information submitted by the affected person/s and organisation/s to compile this limited report. The report has been compiled using information supplied in the initial notification, as well as from follow-up desk top enquiries to bring awareness of potential safety issues to the industry in respect of this occurrence, as well as possible safety action/s that the industry might want to consider in preventing a recurrence of a similar occurrence.</i></p> <p><i>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.</i></p>
<b>Purpose</b>
<i>In terms of Regulation 12.03.1 of the Civil Aviation Regulations (CAR) 2011 and ICAO Annex 13, 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.</i>
<b>Disclaimer</b>
<i>This report is produced without prejudice to the rights of the AIID, which are reserved.</i>

**This report is issued by:**  
**Accident and Incident Investigations Division**  
**South African Civil Aviation Authority**  
**Republic of South Africa**