

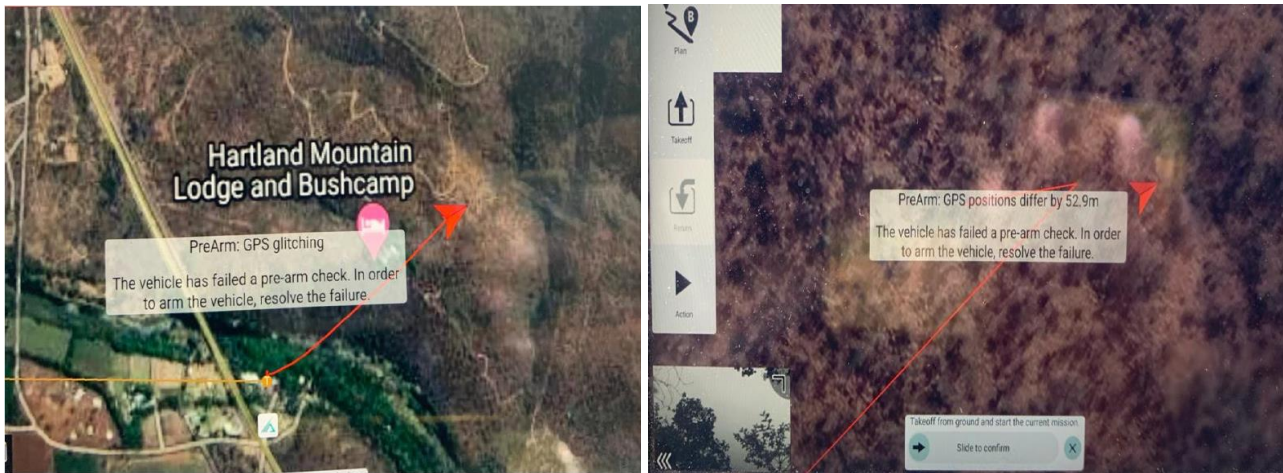


<b>LIMITED ACCIDENT INVESTIGATION REPORT</b>
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<b>Reference Number</b>		CA18/2/3/10102					
<b>Classification</b>	Accident	<b>Date</b>	5 January 2022	<b>Time</b>	1511Z		
<b>Type of Operation</b>	Surveillance (Part 101)						
<b>Location</b>							
<b>Place of Departure</b>	Hartland Mountain Lodge in Brits, North West Province		<b>Place of Intended Landing</b>	Hartland Mountain Lodge in Brits, North West Province			
<b>Place of Accident</b>	Hartland Mountain Lodge in Brits North West Province, approximately 560m north-east of the launch position						
<b>GPS Co-ordinates</b>	<b>Longitude</b>	S 25°32'50.69"	<b>Latitude</b>	E 027°43'14.25"	<b>Elevation</b>	4218ft	
<b>Aircraft Information</b>							
<b>Registration</b>	ZT-WYX						
<b>Model/Make</b>	Multirotor Arace Sirin/ UAV (Serial number: SIR0009)						
<b>Damage to Aircraft</b>	Missing/Lost		<b>Total Aircraft Hours</b>	96			
<b>Pilot-in-command</b>							
<b>Licence Type</b>	RPAS	<b>Gender</b>	Male	<b>Age</b>	32		
<b>Licence Valid</b>	Yes						
<b>Total Hours on Type</b>	17.42		<b>Total Flying Hours</b>	893.2			
<b>People On-board</b>	0	<b>Injuries</b>	0	<b>Fatalities</b>	0	<b>Other (on ground)</b>	0
<b>What Happened</b>							
<p>On 5 January 2022 at about 1511Z, a Multirotor Arace Sirin drone with registration ZT-WYX was being operated for surveillance at Impala Platinum mines in the North West province. The drone was operated remotely by a pilot stationed at Impala Platinum mines factory near Hartland Mountain Lodge in Brits, also in the North West province. The factory is located approximately 55 kilometres (km) east of Impala Platinum mines. The operation was conducted under visual meteorological conditions (VMC) by day and under the provisions of Part 101 of the Civil Aviation Regulations (CAR) 2011 as amended.</p> <p>According to the pilot, the drone was launched from a factory located at Global Positioning System (GPS) S 25°33'1.00" E 027°42'55.75" at a field elevation of 3475 feet (ft) above mean sea level (AMSL). The drone took off using the planned route along the mountain. Approximately 10 minutes into the flight, about 560 metres (m) from the launch position whilst heading in a north-east direction, the drone control signal disconnected from the pilot's control unit. The last position of the drone was indicated at the following GPS coordinates: S 25°32'50.69" E 027°43'14.24" whilst flying at an altitude of 292ft AGL and at a field elevation of 3929ft AMSL. The highest point of the mountain peak around the area where the drone lost signal is 3980ft AMSL.</p>							

The missing drone was reported to the relevant authorities (AIID) on the date of the occurrence. A search for the missing drone from the last recorded position took three consecutive days from the date of occurrence (5 January to 8 January 2022). The drone was not recovered. A review of the geographic area from where the drone was launched to the point where it lost signal had no obstacles that the drone might have collided with on its return flight to launch position.

The drone pilot had a Remote Pilot Licence (RPL) issued by the Regulator (South African Civil Aviation Authority) on 18 February 2020 with an expiry date of 28 February 2022. His Class 3 medical certificate was issued on 6 September 2019 with an expiry date of 30 September 2024. The pilot was qualified for the flight operation and his licence was endorsed with a multirotor drone operator rating. The pilot had a total of 893.20 drone operating hours of which 17.42 hours were on the drone type.



**Figures 1 & 2:** The drone route from launch to where it lost communication with the pilot.

The drone was issued a Remotely Piloted Aircraft System (RPAS) letter of approval by the Regulator on 30 July 2021 with an expiry date of 29 July 2022. The drone was registered by the Regulator on 29 April 2021. The drone had been operated approximately 96 flight hours since new. The operator had an operating certificate issued by the Regulator on 25 October 2021 with an expiry date of 31 October 2022.

The drone had a battery endurance of 55 minutes of flight time at full charge (100%) and could be operated within a range of 5km.



**Figure 3:** Multirotor Arace Sirin/ UAV missing drone. (Source: Operator)

<b>Probable Cause</b>	
The drone pilot lost communication with the drone, and the drone did not return to launch position as per its design characteristics upon loss of signal.	
<b>Safety Action/s</b>	
None.	
<b>Safety Message and/or Safety Recommendation/s</b>	
None.	
<b>Purpose of the Investigation</b>	
<i>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 <b>not to apportion blame or liability</b>.</i>	
<b>About this Report</b>	
<i>Decisions regarding whether to investigate, and the scope of an investigation are based on many factors, including the level of safety benefit likely to be obtained from an investigation. For this occurrence, no 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 brief report. The report has been compiled using information supplied in the initial notification, as well as follow-up information 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 accident.</i>	
<i>This report provides an opportunity to share safety message/s in the absence of an investigation.</i>	
<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>	
<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**