

Section/division Accident and Incident Investigations Division

Form Number: CA 12-57

LIMITED ACCIDENT INVESTIGATION REPORT

Reference Numb	er	CA18/2/3/10139											
Classification	assification Accide		ent Date			8 March 2022		Time		2119	2119Z		
Type of Operatio	ation Remotely Piloted Aircraft (Part 101)												
Location													
Place of Departure		Glencore Coal Mine, Mpumalanga Province			ja	Place of Intended Landing					Glencore Coal Mine, Mpumalanga Province		
Place of Accident		Gle	ncore	Coal Mi	ne, M	pumalar	nga Prov	vince					
GPS Co-ordinates	GPS Latitu		S 26°06'13.05''		Longi	Longitude E029°0)6'73.67''		Elevation		275ft	
Aircraft Informat	ion											I	
Registration		ZT-	WPR										
Make/Model	Make/Model DJI Matrice 200 Series v2 (Serial Number: M200-26)												
Damage to Aircraft		Destroyed			Total	Total Aircraft Hours			909				
Pilot-in-comman	d	l											
Licence Type		Remote Pilot Licence (F			RPL)	.PL) Gender Male			Age 24		1		
Licence Valid		Yes											
Total Hours on Type		230.02			Total Flying Hours			1598.12					
People 0		lı	njuries		0	Fatalities		0		Other (on around)			0
What Happened										gic			
On Tuesday, 8 M registration ZT-V when the accide night and under According to the were inspected were set correct with temperature The pilot flew the the direction wh minutes into the it crashed to the	March 2 WPR went occ the pro- pilot, h and fo tly for e at 18 e drone here th flight, groune	2022 /as c urrec ovision ne co und the d °C an e at a ne se the c d, dis	at 21 onduct d. The ons of nduct to be frone nd cle approx ecurity drone	19Z, a flight v Part 10 ed pre- in good operati ar skie v office sudder ecting f	pilot v surve vas co 1 of t flight d con on. C s. y 65 f rs ha hly be rom t	who was y flight onducte he Civil checks dition fo Good we deet abc dearlie came u he pilot	s remot at Glen ed in vis Aviatio during or the fl eather of eve grou er repo inrespo 's contro	ely piloti core Co ual mete n Regula which th light. Fa condition und level rted sus nsive an oller unit	ng a D. al Mine eorolog ations (e batte il safes is preva (AGL) pect ill od spira . The p	JI Ma a, Mp ical CAF ries we ailec anc lega illed	atrice 200 oumalanga conditions () 2011 as and other re also che d at the tin d at 15 kno l activities out of con went to the	dror a pro- a (VM ame equi ecke ne o ts to . Af trol	ne with ovince, MC) by ended. pment ed and f flight owards ter six before sh site







Figure 3: A Matrice 200 Drone. (Source: DJI website)

What was found

- The pilot had a Remote Pilot Licence (RPL) initially issued by the Regulator (SACAA) on 31 January 2019 with an expiry date of 28 February 2023.
- His Class 4 medical certificate was issued by the Regulator on 30 August 2018 with an expiry date of 31 August 2023.
- The pilot was qualified for the flight operation and his licence was endorsed as a multirotor drone operator. The pilot had a total of 230.02 hours drone type and 1598.12 total drone operating hours. He also had the Visual Line of Sight (VLOS) endorsement on his pilot licence.
- The operator was in possession of a Remotely Piloted Aircraft System (RPAS) letter of approval (LOA) issued by the Regulator on 22 October 2021 with an expiry date of 31 October 2022. The operator had an operating certificate issued by the Regulator on 25 October 2021 with an expiry date of 31 October 2022.
- The investigation found that there was compass interference with the drone, which was caused by a motor spooling up and interfering with the internal compass of the drone.
- The drone was registered under the Regulator's registry on 9 March 2020. The drone had operated approximately 909 flight hours since new. The last inspection was conducted on 2 March 2022 at 878.41 hours and was flown for a further 30.59 hours since the inspection.

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• The drone took off at 00:04 seconds. At 05:17 seconds it reached the furthest point of the mission; and at 05:23 seconds it started to spin uncontrollably and later crashed.



Figure 4 – Airdata. Note the RPA giving an ESC warning during the flight. The RPA starts spinning as it reaches the 5-minute mark.

- Right back motor was spinning at 100%.
- The Electronic Speed Controller (ESC) thrust warning appeared during the flight, likely due to that the root cause of the accident was because of the ESC or motor failure on the right back motor.

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About this Report

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.

This report provides an opportunity to share safety message/s in the absence of an investigation.

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.

Disclaimer

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This report is issued by:

Accident and Incident Investigations Division South African Civil Aviation Authority Republic of South Africa

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