



## AIRCRAFT ACCIDENT REPORT AND EXECUTIVE SUMMARY

				<b>Reference:</b>		CA18/2/3/10346	
<b>Paraglider Registration</b>	N/A	<b>Date of Accident</b>	3 July 2023		<b>Time of Accident</b>	1424Z	
<b>Type of Paraglider</b>	Duet Pro		<b>Type of Operation</b>		Training (Part 141-Subpart 8)		
<b>Pilot-in-command Licence Type</b>	National Pilot Licence (NPL)		<b>Age</b>	22		<b>Licence Valid</b>	Yes
<b>Pilot-in-command Flying Experience</b>	<b>Total Flying Hours</b>		380		<b>Total Hours on Type</b>	380	
<b>Last Point of Departure</b>	Signal Hill in Cape Town, Western Cape Province						
<b>Next Point of Intended Landing</b>	Sea Point Promenade grass area in front of the Winchester Mansions Hotel, Western Cape Province						
<b>Damage to Paraglider</b>	Substantial						
<b>Location of the accident site with reference to easily defined geographical points (GPS readings if possible)</b>							
Atlantic Ocean, approximately 114m from the shoreline at GPS co-ordinates determined to be South 33°54'38.1" East 18°23'26.5" at an elevation of about 65ft							
<b>Meteorological Information</b>	Wind direction: Variable; Wind speed: 3 knots; Temperature: 19°C; Dew Point: 12°C; Visibility: 9999m						
<b>Number of People On-board</b>	2 + 0	<b>Number of People Injured</b>	1	<b>Number of People Killed</b>	1	<b>Other (On Ground)</b>	0
<b>Synopsis</b>							
<p>On Monday afternoon, 3 July 2023, a flight instructor and a student pilot on a Duet Pro paraglider took off from Signal Hill in Cape Town, Western Cape province, which has an elevation of 1 148 feet (ft), with the intention to land at the Sea Point Promenade grass area in front of the Winchester Mansions Hotel. The flight was conducted under visual flight rules (VFR) by day and under the provisions of Part 141 Subpart 8 of the Civil Aviation Regulations (CAR) 2011 as amended.</p> <p>The eyewitness who was riding a bicycle in the Promenade stated that he saw three paragliders over the ocean. As he rode south-westerly, he noticed Paraglider 1 (Duet Pro paraglider) in what appeared to be a spiral manoeuvre before it collided with Paraglider 2 with two occupants from behind. Consequently, Paraglider 1's wing/canopy deflated and could not sustain lift. Moments later, the flight instructor deployed a reserve parachute and the paraglider crash-landed into the Atlantic Ocean, approximately 114 metres (m) from the shoreline. Paraglider 1 flight instructor released himself from the paraglider seat harness and swam to the shoreline; he sustained minor injuries. The student pilot was trapped beneath the paraglider wing under water and still harnessed to his seat; he remained trapped between the rocks and unconscious. He was later freed from the paraglider by the National Sea Rescue Institute (NSRI) personnel who carried him over to the rocks to administer first aid, but they were not successful. The student pilot was fatally injured and was declared deceased at the scene.</p> <p>Paraglider 2 flight instructor maintained control of the paraglider and, later, landed safely on the grass area. Paraglider 1's wing sustained substantial damage with some of its suspension lines severed during the accident sequence. Paraglider 2 was not damaged.</p>							
<b>Probable Cause</b>							
Paraglider 1 conducted a manoeuvre which resulted in a collision with Paraglider 2, and Paraglider 1 flight instructor lost control of the paraglider and it crashed into the ocean; the student pilot was fatally injured.							
<b>SRP Date</b>	19 March 2024		<b>Publication Date</b>	25 March 2024			

## Occurrence Details

**Reference Number** : CA18/2/3/10346  
**Occurrence Category** : Accident (Category 1)  
**Type of Operation** : Training (Part 141)  
**Paraglider Registration** : N/A  
**Paraglider Make and Model** : Davinci Products Inc, Duet Pro  
**Nationality** : South African  
**Place** : Atlantic Ocean, approximately 114m from the shoreline  
**Date and Time** : 3 July 2023 at 1424Z  
**Injuries** : One fatal (student pilot) and one minor (flight instructor)  
**Damage** : Substantial

## 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.*

*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.*

## Investigation Process

The Accident and Incident Investigations Division (AIID) was notified of a fatal accident involving a Duet Pro paraglider which occurred approximately 114 metres (m) from the Atlantic Ocean shoreline at the Sea Point Promenade in Cape Town, Western Cape province, on 3 July 2023 at 1424Z. The South African Hang-Gliding and Paragliding Association (SAHPA) requested the assistance of the Accident and Incident Investigations Division (AIID) to conduct an investigation, which commenced on 10 July 2023 in accordance with (IAW) Part 12 of the CAR 2011 as amended.

The AIID has appointed an investigator-in-charge (IIC) to conduct an investigation with the assistance of SAHPA representatives.

### Notes:

- Whenever the following words are mentioned in this report, they shall mean the following:  
Accident — this investigated accident  
Paraglider — the Duet Pro glider involved in this accident  
Investigation — the investigation into the circumstances of this accident  
Pilot — the pilot involved in this accident  
Report — this accident report*
- Photos and figures used in this report were taken from different sources and may have been adjusted from the original for the sole purpose of improving clarity of the report. Modifications to images used in this report were limited to cropping, magnification, file compression; or enhancement of colour, brightness, contrast; or addition of text boxes, arrows, or lines.*

## Disclaimer

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## Table of Contents

Executive Summary .....	1
Occurrence Details .....	2
Disclaimer .....	2
Contents Page .....	3
Abbreviations .....	4
1. FACTUAL INFORMATION .....	5
1.1. History of Flight .....	5
1.2. Injuries to Persons .....	7
1.3. Damage to the Paraglider .....	7
1.4. Other Damage .....	8
1.5. Personnel Information .....	8
1.6. Paraglider description .....	11
1.7. Meteorological Information .....	12
1.8. Aids to Navigation .....	14
1.9. Communication .....	14
1.10. Launch Site Information .....	14
1.11. Flight Recorders .....	15
1.12. Wreckage and Impact Information .....	15
1.13. Medical and Pathological Information .....	18
1.14. Fire .....	18
1.15. Survival Aspects .....	18
1.16. Tests and Research .....	18
1.17. Organisational and Management Information .....	22
1.18. Additional Information .....	23
1.19. Useful or Effective Investigation Techniques .....	26
2. ANALYSIS .....	26
3. CONCLUSION .....	28
3.2. Findings .....	28
3.3. Probable Cause/s .....	29
4. SAFETY RECOMMENDATIONS .....	30
5. APPENDICES .....	30

**Abbreviation Description**

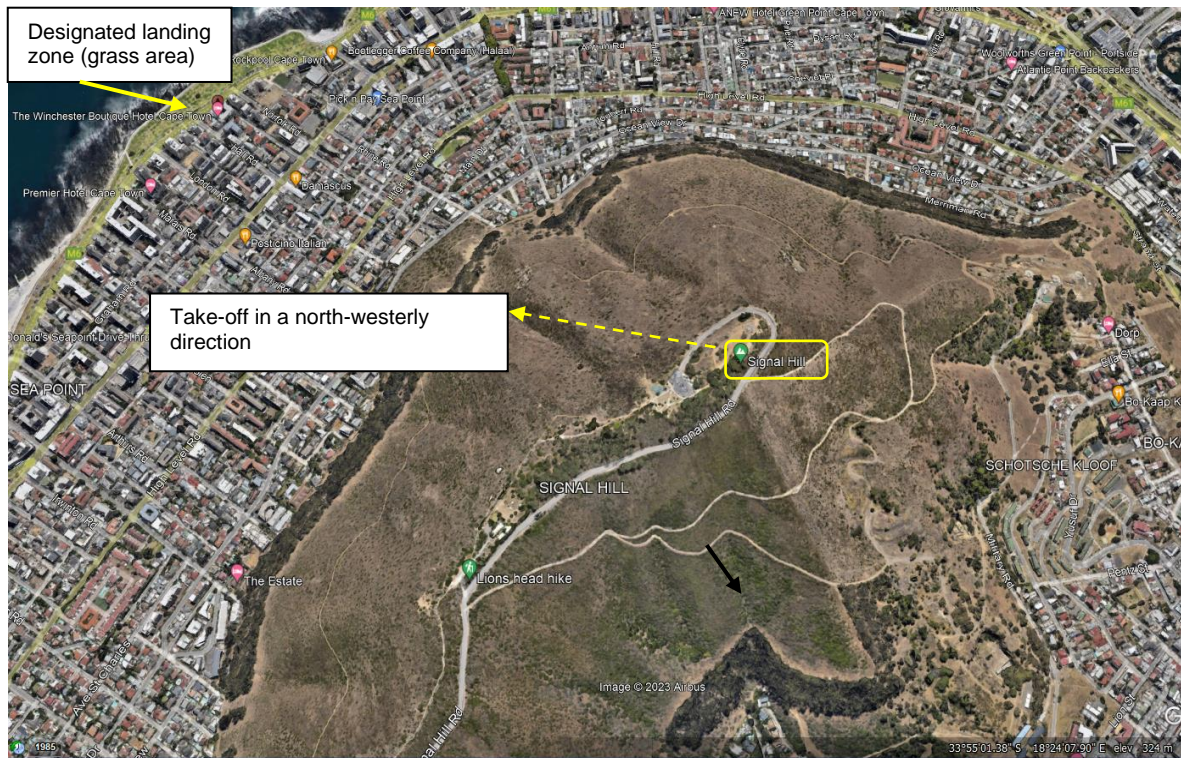
A/C	Aircraft
AGL	Above Ground Level
AIID	Accident and Incident Investigations Division
Alt	Altitude
AMSL	Above Mean Sea Level
CAR	Civil Aviation Regulations
CCTV	Close Circuit Television
CPR	Cardiopulmonary Resuscitation
DTO	Declared Training Organisation
EMS	Emergency Medical Services
FACT	Cape Town International Airport
Ft	Feet
GPS	Global Positioning System
Kg	Kilograms
M	Metres
N/a	Not Applicable
NP	National Pilot Licence
NSRI	National Sea Rescue Institute
QNH	Query Nautical Height
SACAA	South African Civil Aviation Authority
SAPS	South African Police Services
SAWS	South African Weather Service
TFI	Tandem Flight Instructor
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
Z	Zulu (Term for Universal Co-ordinated Time – Zero Hours Greenwich)

## 1. FACTUAL INFORMATION

### 1.1. History of Flight

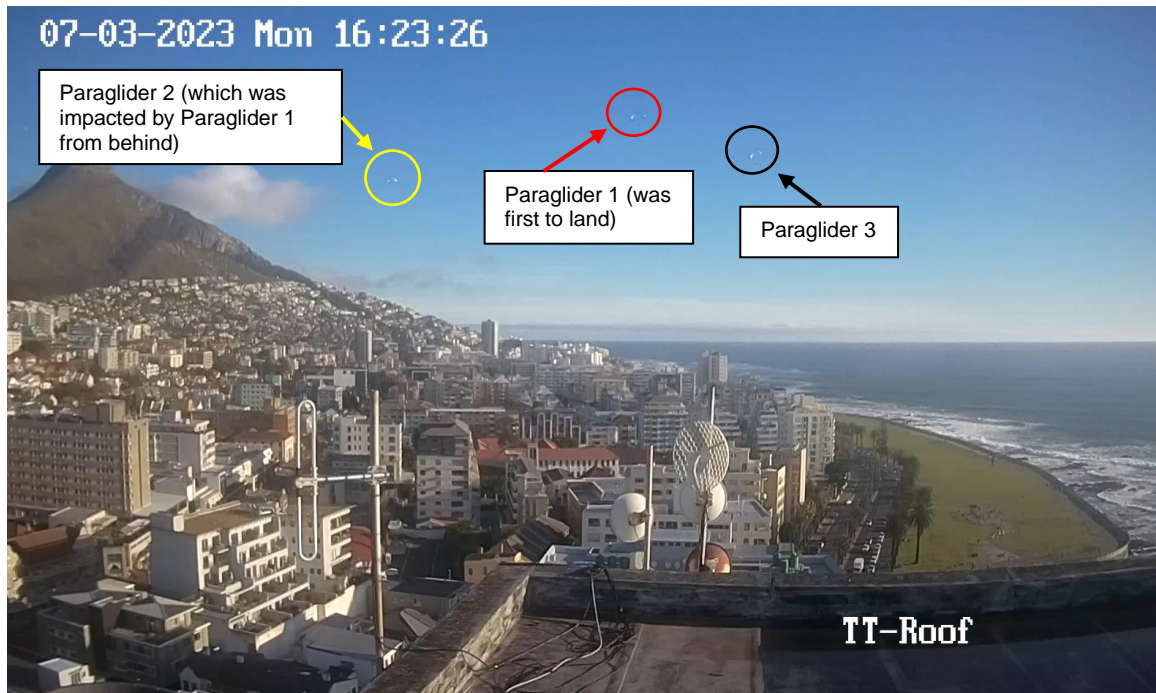
- 1.1.1. On Monday afternoon, 3 July 2023, a flight instructor and a student pilot arrived at Signal Hill in Cape Town, Western Cape province, to prepare for the initial training flight on a Duet Pro paraglider with the intention to land on the designated grass area at Sea Point Promenade in front of the Winchester Mansions Hotel. The Sea Point Promenade is on the lee side of Signal Hill. Signal Hill has an elevation of 1 148 feet (ft). The flight was conducted under visual flight rules (VFR) by day and under the provisions of Part 141 Subpart 8 of the Civil Aviation Regulations (CAR) 2011 as amended.
- 1.1.2. In preparation for the student pilot's first flight, the flight instructor conducted a briefing on paragliding and the safety aspects of launching and landing the paraglider. Later, the paraglider was pulled out of its bag and a pre-flight inspection was conducted. The wing fabric was in good condition, the suspension lines were of equal length and intact with no twists or damage. The flight instructor ensured that the student pilot's helmet was properly latched before securing him to his seat/harness in preparation for take-off. Later, two ground crew personnel helped balance the flight instructor's seat. Thereafter, the flight instructor pulled the risers forward and the paraglider's wing rose from the ground and inflated. At 1412Z, the pair with the assistance of the ground crew, commenced with the run; they took off in a north-westerly direction.
- 1.1.3. The eyewitness, a surfer who was riding a bicycle in the Promenade at the time of the accident stated that he spotted three paragliders flying over the Atlantic Ocean. As he continued to ride in a south-westerly direction towards the Sea Point Swimming Pool where the paragliders normally land, he saw Paraglider 1 (accident paraglider) in what appeared to be a spiral manoeuvre before it collided with Paraglider 2 with two occupants from behind. Consequently, the wing of Paraglider 1 deflated and the paraglider entered an uncontrolled descent. The eyewitness further stated that he saw Paraglider 1 deploy an orange reserve parachute moments before it crashed into the Atlantic Ocean, approximately 114 metres (m) from the shoreline. The paraglider wing (blue in Figure 3) remained partially submerged and the big waves pushed it onto the rocks. The eyewitness called the National Sea Rescue Institute (NSRI) and the Emergency Medical Services (EMS).
- 1.1.4. Paraglider 2 flight instructor stated that both paragliders (1 and 2) were approximately 250m above ground level (AGL) before the collision. They were also both flying with student pilots. Paraglider 2 flight instructor had a clear view of Paraglider 1, which was a distance ahead. Later, he noticed Paraglider 1 performing descending manoeuvres. He then turned his paraglider towards the north to give Paraglider 1 additional space. As he resumed the flight to the north, Paraglider 1 impacted Paraglider 2 from behind with its wing. Paraglider 2 flight instructor further reported that the student pilot and himself were momentarily wrapped in Paraglider 1's wing fabric and some of its suspension lines before they snapped, after which they separated from Paraglider 1 to continue with their flight.

- 1.1.5. Paraglider 2 flight instructor maintained control of his paraglider. Whilst heading towards the landing area, he saw Paraglider 1 crash into the ocean with the orange reserve parachute deployed. He then commenced with the approach from the south before he turned into the wind and landed safely on the grass area. Paraglider 2 flight instructor stated that his student pilot sustained minor injuries. As soon as he had unclipped himself from the harness, he climbed over the ocean wall and the rocks to join the group that was already rendering assistance to Paraglider 1. Paraglider 1 flight instructor had freed himself from the paraglider seat harness and had swum to the shore; he sustained minor injuries. Paraglider 1 student pilot was still trapped beneath the paraglider canopy under water and still harnessed to his seat; he remained trapped between the rocks and was unconscious. He was later freed from the paraglider by the NSRI personnel who carried him over to the rocks to administer first aid, but they were not successful. The student pilot was fatally injured and was declared deceased at the scene. Paraglider 1's wing sustained substantial damage, and some of its suspension lines had broken off during the accident sequence.
- 1.1.6. The mid-air collision occurred during day light at the approximate Global Positioning System (GPS) co-ordinates determined to be South 33°54'38.1" East 18°23'26.5", at an elevation of 65 feet (ft) above mean sea level (AMSL).



**Figure 1:** The launch site (yellow window) and the designated landing area. (Source: Google Earth)





**Figure 2:** The video footage shows three paragliders: Paraglider 1 (accident paraglider) in the middle; Paraglider 2 on the left; and Paraglider 3 on the right was not involved in this accident.  
(Source: Close Circuit Television (CCTV) camera)

\*Note: Time developments on the CCTV camera were recorded in the South African Standard Time.

## 1.2. Injuries to Persons

Injuries	Pilot	Crew	Pass.	Total On-board	Other
Fatal	1	-	-	1	-
Serious	-	-	-	-	-
Minor	1	-	-	1	-
None	-	-	-	-	-
<b>Total</b>	<b>2</b>		-	<b>2</b>	-

Note: Other means people on the ground.

## 1.3. Damage to the Paraglider

1.3.1. Paraglider 1 wing was substantially damaged, and some of the suspension lines snapped.



**Figure 3:** Paraglider 1's wing partially submerged (blue) in the ocean, and the deployed reserve parachute. (Source: Eyewitness mobile phone footage)

#### 1.4. Other Damage

1.4.1. None.

#### 1.5. Personnel Information

##### 1.5.1 Paraglider 1 Flight Instructor's Information

Nationality	South African	Gender	Male	Age	22
Licence Type	National Pilot Licence (NPL)				
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	Grade C Tandem Flight Instructor				
Medical Expiry Date	31 March 2024 (Class 4)				
Restrictions	None				
Previous Accidents	None				

Flying Experience:

Total Hours	380
Total Past 90 Days	24
Total on Type Past 90 Days	24
Total on Type	380

1.5.2 The flight instructor was initially issued a National Pilot Licence (NPL) by the South African Civil Aviation Authority (SACAA) on 11 March 2019 in accordance with (IAW) Part 62.03.1 of the CAR 2011 as amended. His last licence revalidation was on 8 March 2022 with an expiry date of 31 March 2024.



1.5.3 The flight instructor was issued a Class 4 aviation medical certificate on 1 January 2021 with an expiry date of 31 March 2024. The flight instructor was also issued a Level 1 first aid training certificate on 9 March 2021 with an expiry date of 9 March 2024.

1.5.4 The flight instructor had a contractual agreement with the SACAA-approved Declared Training Organisation (DTO) effective from 20 September 2022.

Student Pilot Information

Nationality	Irish	Gender	Male	Age	58
Licence Type	Temporary student pilot as stated in the indemnity form				
Licence Valid	Not applicable	Type Endorsed	Not applicable		
Ratings	None				
Medical Expiry Date	Self-declared				
Restrictions	None				
Previous Accidents	None				

1.5.5 The student pilot was an Irish tourist and was in the country (South Africa [SA]) supporting his son who was representing the Ireland under 20-year-olds (U20) rugby team in the world championship hosted in Cape Town, Western Cape province. He was not in possession of the SACAA-issued National Learner’s Certificate and medical fitness certificate as required by Part 62.02.1 of the CAR 2011 as amended. However, according to the South African Hang-gliding and Paragliding Association (SAHPA) representative, for the introductory flight, a National Learner’s Certificate was not a requirement as the students fly under tandem instruction with the SACAA-approved Tandem Flight Instructor (TFI), contracted by the DTO, but not a pilot-in-command (PIC). The accident flight was the student pilot’s introductory flight which, according to SAHPA, should have taken a duration of 15 to 30 minutes, depending on the prevailing weather conditions, area and the student pilot’s capability to learn.

1.5.6 During the introductory flight, a student pilot is taken through basic exercises such as safety, equipment familiarisation and the paraglider’s ground-handling techniques. Upon completion, the student pilot would have decided whether or not to continue with the paragliding licence qualification (National Pilot Licence [NPL]) which, according to SAHPA, requires a minimum of 4 hours and 35 flights. During this period, the student pilot is assessed by his flight instructor on each exercise. The ability of the student pilot to understand and demonstrate correctly the exercises being taught is monitored and recorded daily by the flight instructor on the trainee proficiency card or practical requirements card.

1.5.7 The student pilot's introductory flight lasted 12 minutes. Before the flight, the student pilot signed the DTO exclusion of liability, and indemnity and agreement form on page serial number 285482, dated 3 July 2023, in which he declared that he was mentally and physically capable of participating in paragliding activities and that he had no existing medical conditions that would prevent him from participating in such (paragliding) activities.

Paraglider 2 Flight Instructor Information

Nationality	South African	Gender	Male	Age	62
Licence Type	National Pilot Licence (NPL)				
Licence Valid	Yes	Type Endorsed	Yes		
Ratings	Grade C Tandem Flight Instructor				
Medical Expiry Date	31 January 2026 (Class 4)				
Restrictions	Suitable corrective lenses				
Previous Accidents	None				

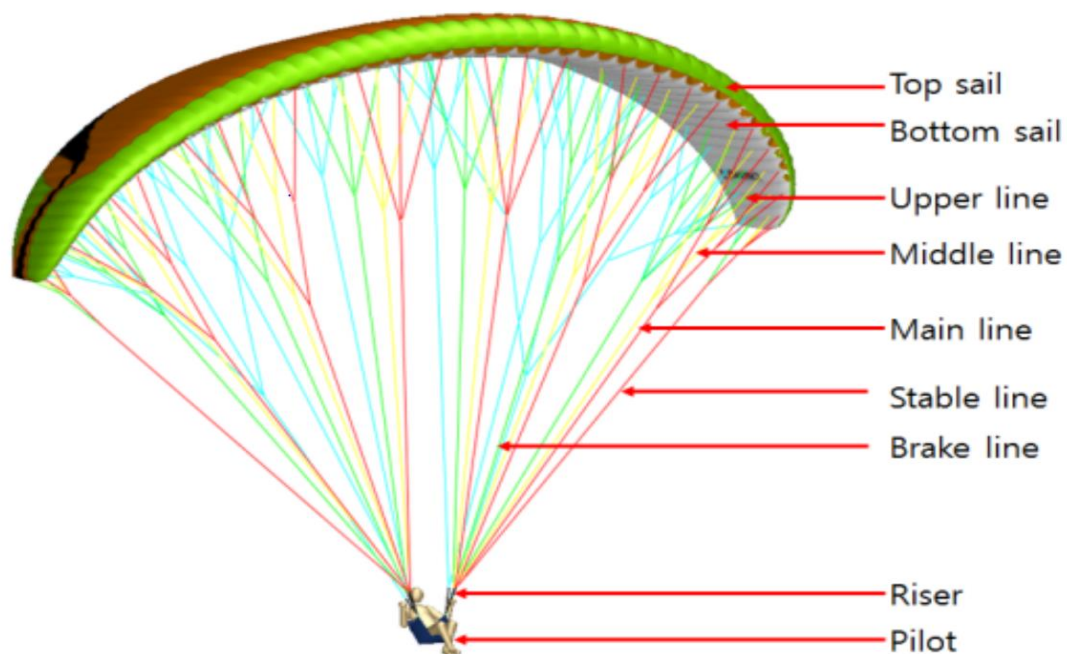
Flying Experience:

Total Hours	6 380
Total Past 90 Days	130
Total on Type Past 90 Days	130
Total on Type	2 126

1.5.8 Paraglider 2 flight instructor was initially issued a NPL by the SACAA on 30 July 2008 IAW Part 62.03.1 of the CAR 2011 as amended. His last licence revalidation was on 1 November 2018 with an expiry date of 28 February 2024. His aviation medical certificate was issued on 24 January 2023 with an expiry date of 31 January 2026 with a restriction to wear suitable corrective lenses.

## 1.6 Paraglider description (Source: Davinci Paraglider's Manual)

1.6.1 *The Duet Pro is a tandem paraglider suitable for both commercial and entry to tandem flying. It comprises a wing which is inflated by the wind to form an aerodynamic wing from which the pilot is suspended by a harness equipped with control lines. The inflated canopy or wing enables the paraglider to fly forward and downward; to gain height it has to make use of rising air. The Duet Pro has 4 risers and is not designed for acrobatic flight. The manufacturer does not recommend prolonged use in this type of flight.*



**Figure 4:** An illustration of a paraglider. (Source: Davinci paraglider manual)

### 1.6.2 Emergencies (Source: Davinci Paraglider's Manual)

*If the wing begins to deflate due to turbulent air or aggressive brake input (i.e. Stalling a wing or part of the wing or the paraglider pilot's own miscalculation), the wing will usually reinflate on its own, but if not, the paraglider pilot may decide to deploy the emergency parachute to land safely. The emergency parachute works best when the paraglider is at high altitude and normally takes 3 – 5 seconds to properly inflate and take load which gives the emergency parachute enough chance to completely deploy. If, for any reason, the wing deflation happens close to the ground, the emergency parachute may be unable to deploy quickly enough, and serious injury could occur.*

### Paraglider 1 Information:

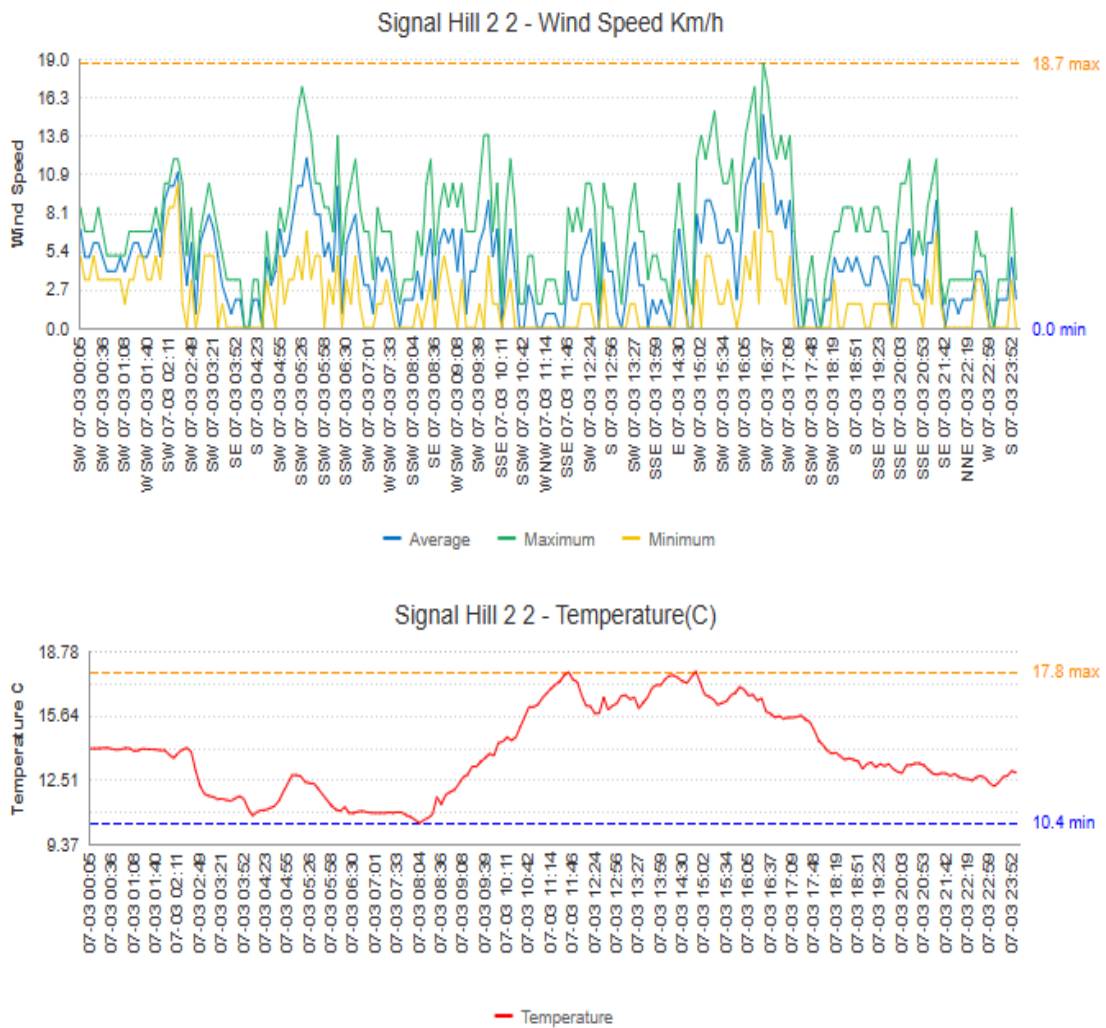
Type	Duet Pro
Serial Number	TDTP42-49217-BL
Manufacturer	Davinci Products Inc.
Year of Manufacture	2022
Number of Risers	4
Harness Model	Bi Pro 2
Colour	White, yellow and blue
Weight Range	230 kilograms (kg)
Inspection Date	Not reached (New)
Operating Category	Training (Part 141)
Previous Accidents	Nil

1.6.3 Paraglider 1's wing was certified for an all-up weight range of 230 kilograms (kg). The combined weight of the occupants and equipment on the day was 181kg, meaning that Paraglider 1 was operated within its approved weight limit.

1.6.4 Paraglider 1 was new and had accumulated 10 hours at the time of the accident. It had not reached the inspection interval of one time in two years, or 150 flight hours as recommended by the manufacturer.

### 1.7 Meteorological Information

1.7.1 The weather information and graphs below were obtained from the Wind Talker, a local weather station at Signal Hill. This information was made available to the investigation team by SAHPA officials.

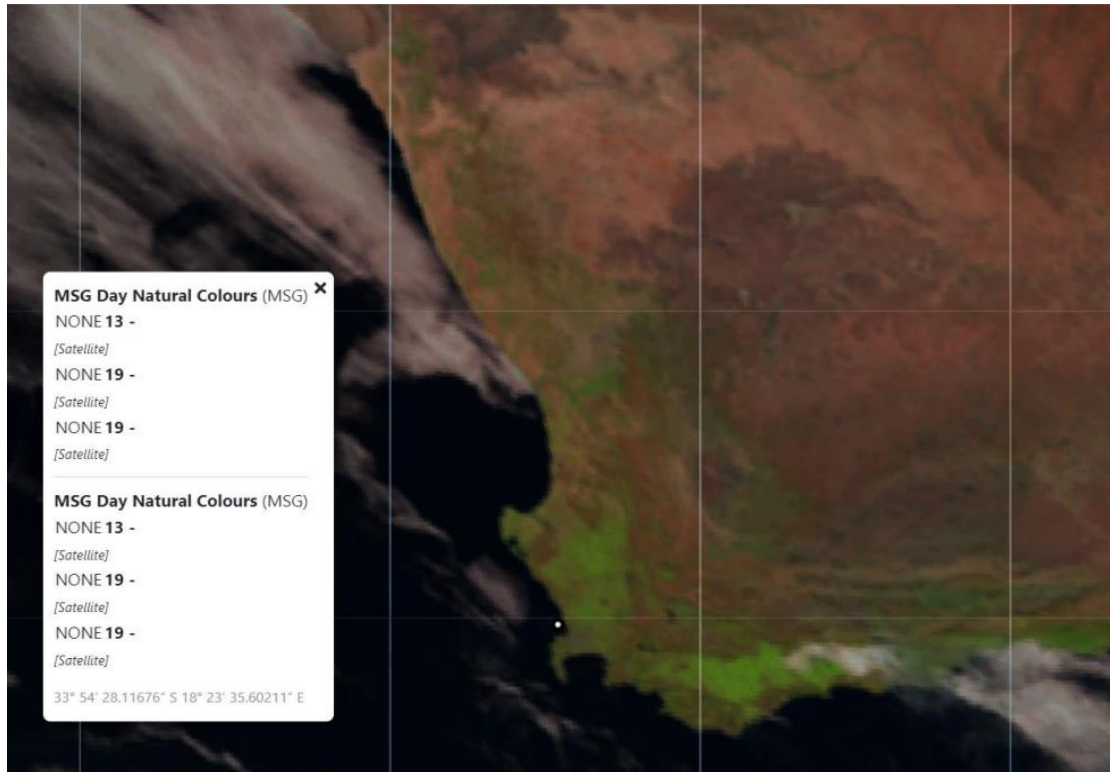


**Figure 5:** The weather information obtained from the Wind Talker at Signal Hill. (Source: SAHPA)

1.7.2 The weather information in the table below was obtained from the South African Weather Service (SAWS).

Meteorological Aerodrome Report (METAR) that was issued for Cape Town International Airport (FACT) weather station, which is the station closest to the area of accident, stated the weather conditions closer to the time of the accident as follows:

Wind Direction	Variable	Wind Speed	03 knots	Visibility	9999m
Temperature	19°C	Cloud Cover	CAVOK	Cloud Base	NIL
Dew Point	12°C	QNH	1014 hPa		



**Figure 6:** The weather forecast indicated no clouds in the vicinity of the accident site (location indicated by the white spot).

## **1.8 Aids to Navigation**

1.8.1 Not applicable.

## **1.9 Communication**

1.9.1 Not applicable.

## **1.10 Launch Site Information**

1.10.1 The paragliders took off from a registered SAHPA paragliding site in Signal Hill (a landmark hill with a flat top) in Cape Town, next to the Lion's Head and opposite Table Mountain at GPS co-ordinates determined as 33°65'.074 South 18°24'.143 East. The launch area at the top of Signal Hill is adjacent to the car park. Signal Hill is the property of the South African National Parks (SANParks).





**Figure 7:** An illustration of a paraglider being launched from Signal Hill.

## **1.11 Flight Recorders**

1.11.1 Paraglider 1 was not fitted with a flight recorder. However, the flight instructor had a 360° portable Go-Pro digital camera secured to a stick and had captured the take-off and the sequence of events leading up to the accident. The camera, including its pertinent memory card, was confiscated by the South African Police Services (SAPS) officers based at the Sea Point Police Station. The camera was made available to the investigator-in-charge (IIC) for analysis.

## **1.12 Wreckage and Impact Information**

1.12.1 The accident occurred during day light at the approximate GPS co-ordinates determined to be South 33°54'38.1" East 18°23'26.5", at an elevation of 65ft AMSL.

1.12.2 The CCTV camera footage obtained from the owner of one of the buildings around the Sea Point Promenade revealed the following.

\*Note: The below developments were recorded in South African Standard Time and were changed to Zulu Time.

At 14:24:12Z, three paragliders are spotted flying above the ocean. *According to the SAHPA representative who is also a paraglider pilot, they (the paragliders) were all within the parameters of the highest building around the Sea Point Promenade area.* The spacing between them looked sufficient.

At 14:24:18Z, Paraglider 1 is observed performing what is referred to as, "wing over manoeuvres" (described in section 18.4).

At 14:24:22Z, Paraglider 1 descends below the other two paragliders and exceeds a bank angle of 60°. *The occupants on Paraglider 1 were above the wing, which constituted an acrobatic/aerobatic manoeuvre a Duet Pro paraglider is not designed to perform.*

At 14:24:27Z, Paraglider 1 exceeds the wing over manoeuvre and balloons in an exit climbing attitude towards Paraglider 2.

At 14:24:28Z, Paraglider 1's wing impacts the occupants of Paraglider 2 from behind. The occupants of Paraglider 2 are momentarily wrapped in the wing fabric of Paraglider 1 (Figure 9) with the suspension lines on their left legs.

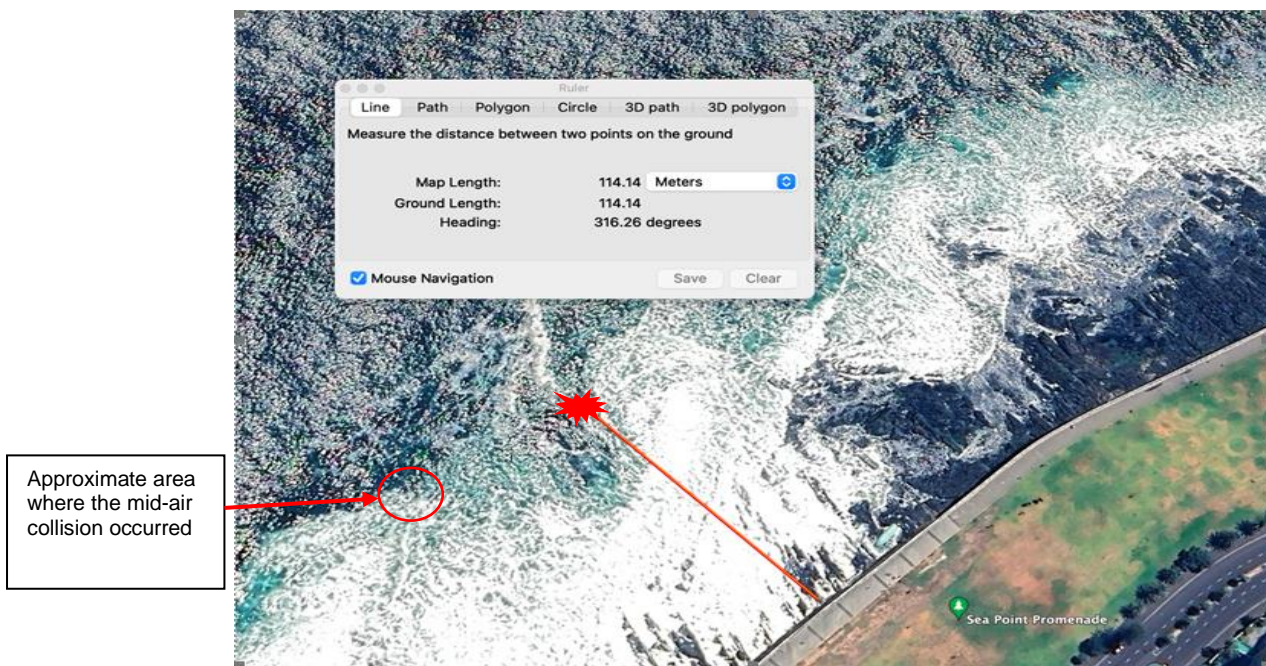
At 14:24:33Z, Paraglider 1's wing fabric tears and separates from the occupants of Paraglider 2. Consequently, Paraglider 1's wing deflates and could not fly or sustain lift.



**Figure 8:** Video footage shows the wing of Paraglider 1 impacting Paraglider 2 occupants from behind (red circle). (Source: Eyewitness mobile phone footage)



**Figure 9:** Paraglider 2 Go-Pro camera video footage shows Paraglider 2 occupants wrapped in Paraglider 1's wing fabric and suspension lines.



**Figure 10:** The approximate area where the mid-air collision occurred and the crash area which was approximately 114m from the shoreline. (Source: Google Earth)

1.12.3 The time at which the reserve parachute was deployed to impact with the water was approximately 7 seconds, which was within the acceptable norms of the reserve parachute deployment.

1.12.4 Paraglider 2's wing and suspension lines were not affected (did not sustain damage) during the accident sequence. Paraglider 2 flight instructor had reassured the student pilot that all was fine; he maintained control of the paraglider. He later performed a safe landing on the usual landing spot (grass area).

### **1.13 Medical and Pathological Information**

1.13.1 A post-mortem examination was performed on the student pilot. The results of the post-mortem and the toxicology tests were not available at the time of completion of this report. The student pilot was fatally injured during the accident sequence. Should the post-mortem examination results reveal a different cause of death, this information will be considered new and will necessitate the reopening of this investigation.

### **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 student pilot was caught between the rocks and could not free himself from the paraglider seat harness and wing fabric/suspension lines; he was declared deceased at the scene. The accident was considered not survivable.

### **1.16 Tests and Research**

1.16.1 The investigation team commenced with the on-site investigation on 10 July 2023. The remains of paraglider 1 had already been recovered from the ocean. According to SAHPA's safety officer, none of the remains from Paraglider 1 was tampered with before they were transported to an approved paraglider maintenance facility in Wynberg, Cape Town. A review of Paraglider 1's technical logs did not reveal any pre-existing defects or anomalies that could have contributed to the accident.

1.16.2 Paraglider 1's components were inspected, and no faults were found with any of its cells, cross-ports or V-ribs. All stitching was intact; the wing fabric was torn at multiple places.

1.16.3 The suspension lines were examined, some were found to have broken or snapped; they exhibited fracture features which were consistent with excessive stretching. The risers had no trace of damage. The harnesses were intact; all the webbing and material were in a satisfactory condition.





**Figure 11:** The torn wing fabric of Paraglider 1.

1.16.4 Paraglider 1 flight instructor and student pilot's seats were examined and were found to be intact with the safety harness clips operational. The reserve parachute was also inspected; the reserve strop, which is a connection point between the reserve parachute and the paraglider, had snapped during the accident sequence.



**Figure 12:** Paraglider 1 reserve strop that snapped.



**Figure 13:** The student pilot's seat.



**Figures 14/15:** The flight instructor's seat (left) and its safety buckle/clip in a locked position (right).

1.16.5 The first video with serial number GX016755 was analysed with the assistance of a representative from SAHPA, the following were observed (*time elapsed (TE) is the duration of the recording not the actual time. It is minutes and seconds*):

TE 00:27, the flight instructor was heard providing a pre-flight briefing to the student pilot. The student appeared nervous and responded to the instructions in a locked manner (not showing signs of being attentive).

The windsock at Signal Hill indicated the presence of a light wind (breeze), and conditions for launch appeared to have been within the normal operating parameters.



Paraglider 1's wing (accident paraglider) had a white underside colour, and the top was blue with a yellow flash. There was no evidence of a hook knife (tool used to cut the webbing and the suspension lines in an emergency) on the flight instructor's shoulder strap.



**Figures 16 and 17:** An illustration of the area where a hook knife is usually placed (left); hook knife (right). (Source: SAHPA)

Paraglider 1's wing and the flight instructor's seat were both Davinci brand. Five people were seen at the launch site assisting the flight instructor and the student pilot to prepare for launch (three holding the wing and two alongside the flight instructor and the student pilot's seats). The flight instructor and the student pilot were both wearing helmets and their chin straps were properly latched.

Take-off was in reverse due to acceptable wind or weather conditions during launch.

TE 01:03, the take-off was effected, and was within the standard norms. The investigation team noted that the flight instructor was using the hard spreader bars. The trimmers were pulled symmetrically for the launch at the slowest flying configuration.

TE 01:08, the flight instructor ensured that the student pilot was comfortable on his seat and that his arms were correctly positioned in the spreader bars. The harness carabiners between the occupants and the wing were tandem-certified and not the quick release type.

TE 01:25, the trimmers were partially released to neutral position to acceptable speed.

TE 01:31, the flight instructor held the brake toggles on top of the handles, not through the brake handles, which allowed faster access to the reserve parachute in case of an emergency. During this time, the student pilot still looked tense.

TE 01:33, the student pilot started to relax; however, his hands remained tense on the camera stick.

1.16.6 Second video (continuous) with serial number GX016844 showed the following:

TE 00:02, the flight instructor adjusted the trimmers by pulling them in, slightly symmetrical. A moment later, he (the flight instructor) was heard telling the student pilot that he was going to perform some turns and that things were going to get quite crazy. He was also heard telling the student pilot that if it is too much, he must inform him and he will stop the turns.

TE 00:24, Paraglider 1 was above the ocean in line with the shore. The flight instructor was observed performing what is referred to as “wing over manoeuvres”, although he did not appear to conduct a comprehensive scan of the air space around him before undertaking the manoeuvres.

TE 00:31, the flight instructor exceeded the 60° bank angle to the right whilst he performed wing over manoeuvres.

TE 00:36, Paraglider 1 significantly exceeded the 60° bank angle and undertook an aerobatic manoeuvre. The student pilot appeared uncomfortable and screamed “Jesus”. At this time, the flight instructor’s hands were high which indicated no sign of stopping the manoeuvre.

TE 00:39, Paraglider 1 exited the manoeuvre to the left and ballooned towards Paraglider 2 and impacted its occupants. The trajectory of the flight instructor and the student pilot in Paraglider 1 was in an upwind motion post-impact with Paraglider 2 occupants.

TE 00:42, tension on Paraglider 1 suspension lines was lost. The flight instructor on Paraglider 2 looked shocked; there was no evidence of him effecting any evasive action.

TE 00:44, the flight instructor on Paraglider 1 deployed the reserve parachute.

TE 00:52, Paraglider 1, with occupants still harnessed to their seats, impacted the water surface. There was no evidence of the flight instructor retracting the wing. There was no evidence of the flight instructor rescuing the student pilot or assisting him to unclip or release his seat’s safety buckle.

Beyond TE 00:52 to 01:48, the camera was submerged in water, its movement became increasingly erratic and was not recording any substantial information.

## **1.17 Organisational and Management Information**

1.17.1 This training flight was conducted under the provisions of Part 141 Subpart 8 of the CAR 2011 as amended.

1.17.2 The training organisation was issued the DTO certificate by the SACAA on 3 October 2022 with an expiry date of 28 February 2024.

## 1.18 Additional Information

### 1.18.1 Responsibilities of Tandem Pilots (Source: SAPHA Manual of Procedures, Page 46)

*Tandem pilots, whether amateur or professional, have the added responsibility of ensuring the safety of their passengers and to this end should, in addition to the above:*

- a) Apply a much greater safety test to conditions before flying with passengers.*
- b) Meticulously maintain their flying equipment.*
- c) Thoroughly explain the risks of flying to potential passengers.*

### 1.18.2 Responsibilities of Instructors – Page 47:

*Instructors also have additional responsibilities in introducing new members to the sport and must, therefore, ensure that they:*

- a) Emphasise safety at every opportunity.*
- b) Only progress students who have comfortably achieved the required skills and knowledge taught in the earlier stages of instruction.*
- c) Ensure that the applicable training curriculum is fully adhered to as a minimum and to extend this whenever a student's ability and flying conditions are conducive to such.*
- d) Maintain their personal training qualifications and strive to advance their own proficiency, knowledge and teaching skills.*

### 1.18.3 Requirements for the National Pilot Learner's Certificate

*62.02.1 (1) An applicant for the issuing of a national pilot learner's certificate shall –*

- (a) be not less than 16 years of age, except as provided for in sub-regulation (2);*
  - (b)(i) hold a valid medical certificate appropriate to the category of licence ultimately being trained for issued in terms of Part 67; or*
    - (ii) in the case of hang-gliding or paragliding, hold a medical fitness certificate, dated not less than three months before the date of application;*
  - (c) have successfully completed the training referred to in regulation 62.02.2; and*
  - (d) have passed the theoretical knowledge examination referred to in regulation 62.02.3.*
- (2) Notwithstanding the provisions of sub-regulation (1), an applicant for the issuing of a national pilot learner's certificate in the category paraglider shall be not less than 14 years of age.*

#### 1.18.4 Wing Over Manoeuvres and Illustration (Source: <https://justacro.com/tricks/english/wing-over>).

##### Description:

*The wing over is a series of dynamic turns, whilst the pilot swings over the wing. It is the base of the whole acro paragliding, but also a pretty difficult manoeuvre to learn. The key to this trick is the perfect timing of weight shifting and braking.*

##### Preparation:

*Open the chest strap of your harness as much as possible to make it more sensible for weight shifting. Take one wrap on both sides if the brake lines are long.*

##### Entry:

*Start a fast turn to the left by weight shifting and braking. Just after you start to dive, release the brake, shift your weight to the right, and pull the right brake when you are at the lowest point. Now as the glider roll to the other side, you swing up and the canopy will be in front of you. Brake the glider using both brakes at the highest point to prevent collapse on the upper side of the wing. Once you start to dive again, release the brakes, shift your weight to the left and pull the left brake on the lowest point. Do not forget the braking on the upper death point. As you continue this movement you will swing up higher and higher.*

##### Advanced Technique:

*Complete your turns (do more than 180 degrees turns) to get a closed „8” figure movement instead of a series of „S” turns. If your technique is right and you have enough energy, you do not have to brake the glider at the highest point anymore, just like in a well-done looping. Note that to be able to leave the braking at all you need a pretty dynamic glider and good technique.*

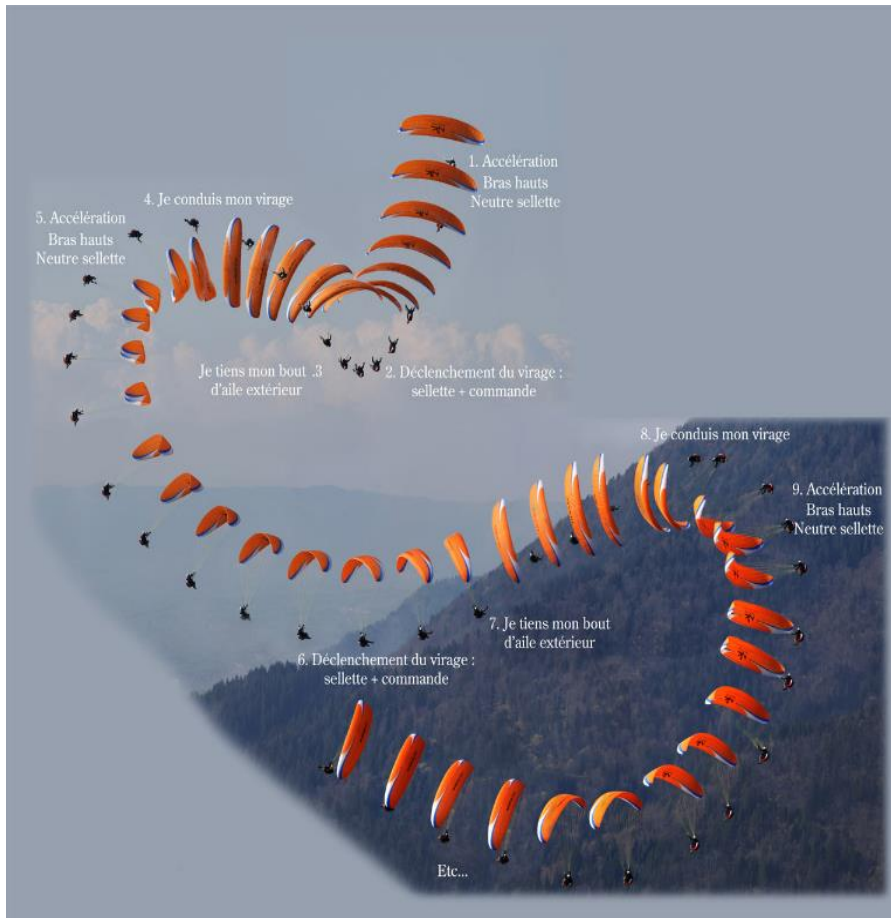
##### Exit:

*You have to bleed out the energy gradually. The simplest and safest way is to lead out by 1-2 complete turns. If you are not confident with deep spirals, choose the next option: Decrease the amplitude of the wing over by less weight shift and brake input, until you are not swinging anymore.*

##### Dangers:

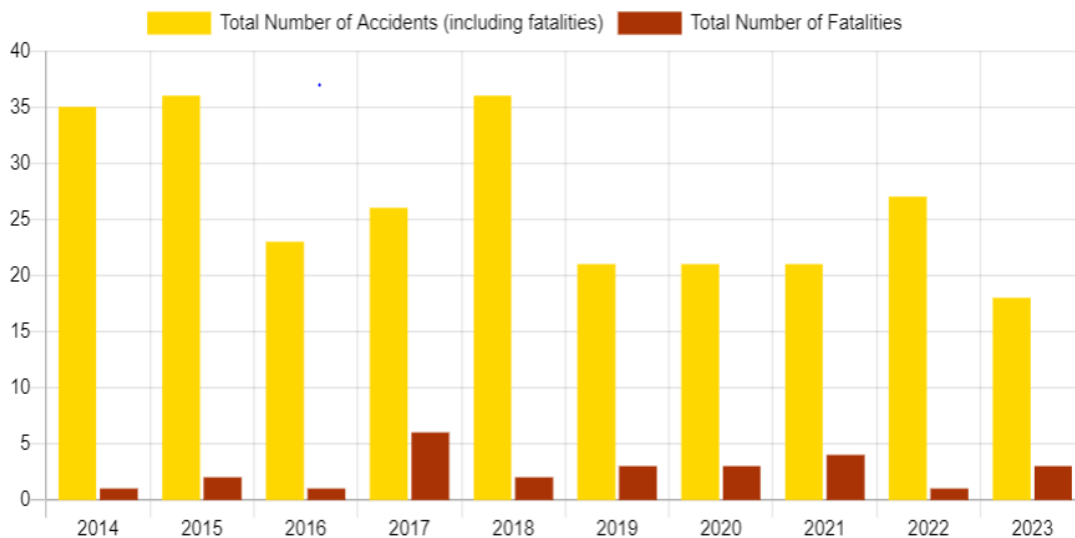
*If you do not brake (or not enough) the paraglider at the highest point, you can get huge and dynamic collapses on the upper side (big danger of large cravattes, riser twists). At the beginning start the weight shifting just after you pass the highest point and pull the brake before the lowest. By this your wing over will not be so high, but it will be more dynamic and safer. When you feel confident, you can pull it later and later, to increase the amplitude of the turns. Be careful, if you start to brake after the lowest point, the following turn could be very high, but you lose too much energy and there is high risk to get a big collapse on the top of the roll (and then you fall down next to the wing/canopy). However, if you feel it is going to happen (you slow down too much, and the lines starts to lose the tension) pull down the*

*brakes deeply until you start to swing back under the glider (the brake pressure will be very slight) to prevent the collapse or leastwise to moderate the consequences.*



**Figure 18:** An illustration of wing over manoeuvres.

1.18.5 SAHPA accident statistics from 2014 to 2023.



1.18.5.1 The above statistics indicate paraglider accidents that occurred over the past 10 years.

## 1.19 Useful or Effective Investigation Techniques

1.19.1 None.

## 2. ANALYSIS

### 2.1. General

From the available evidence, the following analysis was made with respect to this accident. This shall not be read as apportioning blame or liability to any organisation or individual.

### 2.2. Analysis

#### 2.2.1 The Pilot (Paraglider 1 Flight Instructor)

The flight instructor on Paraglider 1 had a valid NPL that was issued by the SACAA on 11 March 2019. His last licence revalidation was on 8 March 2022 and the licence was reissued on the same day with an expiry date of 31 March 2024. The flight instructor was issued a Class 4 aviation medical certificate on 1 January 2021 with an expiry date of 31 March 2024. Paraglider 1 flight instructor was issued a Grade C Tandem Flight Instructor's rating by the Regulator and had a contractual agreement with the DTO which was effective from 20 September 2022. The flight instructor had 380 total hours on the paraglider model (Duet Pro), meaning that he was well-acquainted with it and its limitations. This was the student pilot's introductory flight. The flight instructor conducted a safety briefing which included launching and landing details. He also made sure that the student pilot's helmet and harness were secured.

Before the launch of Paraglider 1, a video showed the flight instructor without the hook knife on his shoulder strap. The first video with serial number GX016755 downloaded from a Go-Pro camera showed the uneventful launch of Paraglider 1 from Signal Hill. In the second video with serial number GX016844, the flight instructor on Paraglider 1 was heard informing the student pilot that things were going to get quite crazy. The student pilot appeared not to have knowledge of what the flight instructor meant and what his intentions were. The above statement by the flight instructor contradicted the roles and responsibilities of instructors and tandem pilots contained in the SAHPA manual of procedures (outlined in 1.18.2 and 1.18.3 of this report). From the video, Paraglider 1 flight instructor did not appear to conduct a comprehensive scan of the air space around him. The flight instructor executed the wing over manoeuvres which the paraglider model was not designed to perform. There was no evidence of the student pilot being willing to undertake the acrobatic/aerobatic manoeuvres. Paraglider 1 was observed exceeding a 60° bank angle and, thereafter, ballooned towards Paraglider 2 and impacted the occupants from behind. There was also no evidence of Paraglider 2 flight instructor initiating an evasive action manoeuvre; he exhibited a look of



shock after impact by Paraglider 1 because he had decided to route in a northerly direction to create space between the paragliders. The manoeuvres performed by the flight instructor of Paraglider 1 were not planned, reduced separation, and were deemed reckless and unsafe.

#### 2.2.2 Student pilot

The student pilot was an Irish tourist and was in SA supporting his son who was representing the Ireland U20 rugby team in the world championship hosted in Cape Town, Western Cape province. The student pilot did not have a National Learner's Certificate and medical fitness certificate as required in Part 62.02.1 of the CAR 2011 as amended (requirements for the national pilot learner's certificate). However, according to SAHPA representatives, a National Learner's Certificate and medical fitness certificate were not required because the student pilot signed the DTO liability and indemnity form in which he declared he was medically and physically fit and that he was flying under the supervision of the SACAA-approved TFI, and not as a PIC.

#### 2.2.3 Paraglider 1 examination

A review of Paraglider 1 technical logs did not identify any pre-existing defects or anomalies that could have contributed to the accident. No faults were found with any of Paraglider 1 cells, cross-ports or V-ribs after it was inspected. All stitching was intact; the wing fabric had torn at multiple places during the accident. Paraglider 1 was new and its technical documentation showed that it was well maintained IAW the set procedures.

#### 2.2.4 Environment

The images captured by the CCTV camera which was mounted on one of the buildings at the Promenade area showed clear skies at the time of the flight. In addition, the weather reports from the SAWS and the Wind Talker at Signal Hill indicated fine weather conditions at the time of the flight, which had no bearing to this accident.

#### 2.2.5 Conclusion

Paraglider 1 was observed in the video executing the wing over manoeuvres which placed it in a collision path with Paraglider 2. Part of the wing fabric and its suspension lines wrapped around the occupants of Paraglider 2 before the wing fabric teared and suspension lines broke off from excessive stretching. The severing of the wing structure caused it to deflate and, therefore, could not sustain lift. Consequently, the flight instructor deployed the emergency parachute. The parachute deployed as designed and the paraglider crash-landed into the Atlantic Ocean. The flight instructor unclipped himself from the seat harness and

swam to the shore. However, the student pilot was caught between the rocks and could not free himself from his seat harness. Additionally, he was not in possession of a hook knife that would have enabled him to cut himself free from the suspension lines and wing fabric. He remained trapped to his seat harnesses and was declared fatally injured at the accident scene.

There is no logical explanation as to why Paraglider 1 flight instructor switched from a normal flight and opted to perform aerobatic manoeuvres during an introduction flight. The manoeuvres were deemed unnecessary and unsafe, which contradicted the roles and responsibilities of instructors and tandem pilots as contained in the SAHPA manual of procedures. Of concern to the investigation team was whether the deceased was indeed a student pilot, or whether he was taking a joy ride, thus voluntarily wished to experience a flight from a paraglider launched from Signal Hill, taking into consideration that he was a tourist and in the country for a short time. It is unlikely that he would have pursued a licence in this sport.

### 3. CONCLUSION

#### 3.1. General

From the available evidence, 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 conclusion 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 occurring, or would have mitigated the severity of the consequences of the accident. 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 Paraglider 1 flight instructor was qualified and certified IAW the existing regulations.

3.2.2 He was initially issued a NPL on 11 March 2019. His last licence revalidation was issued on 8 March 2022 with an expiry date of 31 March 2024.

3.2.3 He was issued a Class 4 aviation medical certificate on 1 January 2021 with an expiry date of 31 March 2024.

- 3.2.4 He was issued a Level 1 first aid training certificate on 9 March 2021 with an expiry date of 9 March 2024.
- 3.2.5 The paragliders took off from a registered SAHPA paragliding site on Signal Hill.
- 3.2.6 Weather conditions were fine at the time of the flight.
- 3.2.7 The accident flight was the student pilot's introductory flight, which lasted 12 minutes.
- 3.2.8 The student pilot signed the DTO's liability and indemnity form dated 3 July 2023 in which he declared that he was mentally and physically capable of participating in paragliding activities and that he had no existing medical conditions that prevented him from participation in paragliding activities.
- 3.2.9 Paraglider 1 was operated under the provisions of Part 141 Subpart 8 of the CAR 2011 as amended.
- 3.2.10 Paraglider 1 was operated within its weight limit at the time of the accident.
- 3.2.11 Examination of Paraglider 1 did not reveal any pre-impact malfunctions or anomalies that would have precluded normal operation.
- 3.2.12 The paragliding training organisation was issued the DTO certificate by the SACAA on 3 October 2022 with an expiry date of 28 February 2024.
- 3.2.13 Paraglider 1 had flown 10 hours total flight time since new at the time of the accident, meaning that it had not reached the inspection interval of one time in two years, or 150 hours of flight time.
- 3.2.14 Paraglider 2 flight instructor was initially issued a NPL by the SACAA on 30 July 2008 IAW Part 62.03.1 of the CAR 2011 as amended. His last licence revalidation was on 1 November 2018 with an expiry date of 28 February 2024. His aviation medical certificate was issued on 24 January 2023 with an expiry date of 31 January 2026 with a restriction to wear suitable corrective lenses.
- 3.2.15 Paraglider 1 conducted a manoeuvre which resulted in a collision with Paraglider 2 and the flight instructor in Paraglider 1 lost control of the paraglider and it crashed into the ocean; the student pilot was fatally injured.

### **3.3. Probable Cause**

- 3.3.1 Paraglider 1 conducted a manoeuvre which resulted in a collision with Paraglider 2 and the flight instructor in Paraglider 1 lost control of the paraglider and it crashed into the ocean; the student pilot was fatally injured.

### **3.4. Contributing factor/s**

- 3.4.1 A comprehensive scan of the air space was not conducted before the wing over manoeuvres were performed.

- 3.4.2 Paraglider 1 flight instructor displayed a total disregard for the safe operation of a paraglider (the paraglider was operated outside its performance limitations).
- 3.4.3 The roles and responsibilities of tandem pilots and instructors as contained in the SAHPA manual of procedures were not adhered to.
- 3.4.4 Paraglider 1 flight instructor displayed poor airmanship.

## **4. SAFETY RECOMMENDATIONS**

### **4.1. General**

**4.1.1** 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 Recommendations**

- 4.2.1 It is recommended to the DTO that quick release type of harness carabiners be used to allow pilots to timeously separate from their paragliding gear during emergencies.
- 4.2.2 It is recommended to the DTO to introduce the use of hook knives during paragliding flights to enable pilots to cut through the webbing and suspension lines during emergencies.
- 4.2.3 There seem to be a grey area between people visiting SAHPA launching sites who voluntarily undertake joy rides for pleasure and the DTO registered student pilots. It is, therefore, recommended to the Director of Civil Aviation (DCA) that the responsible division within the Regulator provides clear regulations and guideline/s detailing who fits the title/description of a passenger and a student pilot so that the applicable regulations can be enforced; this will ensure that the paragliding activities are conducted safely.

## **5. APPENDICES**

- 5.1. None.

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