



POWERED GLIDER ACCIDENT REPORT AND EXECUTIVE SUMMARY

				Reference:	CA18/2/3/9068	
Powered glider Registration	ZU-GAN	Date of Accident	10 August 2012		Time of Accident	11:06Z
Type of Powered glider	Pipistrel Taurus		Type of Operation		Private	
Pilot-in-command Licence Type		Glider / PPL	Age	55	Licence Valid	Yes
Pilot-in-command Flying Experience		Total Flying Hours	80.2		Hours on Type	80.2
Last point of departure		El Mirador (FALQ)				
Next point of intended landing		El Mirador (FALQ)				
Location of the accident site with reference to easily defined geographical points (GPS readings if possible)						
Game reserve in Winterton at the GPS: S28° 59'.36" E029° 28'.47"						
Meteorological Information						
Number of people on board	1 + 0	No. of people injured	0	No. of people killed	1	
Synopsis						
<p>The aircraft took off from FALQ for a local private flight. The witness saw the wings of the Taurus/powerd glider flexing and oscillating up and down along the entire span and it was also longitudinally unstable. He also noticed the wheel bay doors opening and closing in time with the pitching oscillations. The GPS shows that the Fifth and last thermal attempt was at 13:22 over the ridge immediately West of the airfield. Pulled up to left - found sink. Made 1 attempt to centre still turning Left.</p> <p>Reversed direction to Right at 12:24. Made a rapid 180 degree while descent rate increased steadily. Flew directly towards the airfield with airspeed increasing rapidly from 150km/h to over 230km/h in 6-9 seconds. Pulled up slowing to 180km/h Made a parabolic descent to impact close to vertical. Wind was still, rising to 11-16km/h from the East (around 20deg) for the latter part of the flight.</p> <p>The pilot was fatally injured. The powered glider was destroyed by post impact.</p>						
Probable Cause						
<p>The pilot exceeded the speed limitation which caused him to lose control of the Taurus/powerd glider which resulted in a stall before, the powered glider impacted with the ground.</p>						
IARC Date				Release Date		

POWERED GLIDER ACCIDENT REPORT

Name of Owner/Operator : Alistair Mc Intosh
Manufacturer : Pipistrel D.O.O
Model : Taurus
Nationality : South African
Registration Marks : ZU-GAN
Place : Game reserve in Winterton approximately parallels the El Mirador (FALQ), at the GPS: S28° 59'.36" E029° 28'.47"
Date : 10 August 2012
Time : 11:06Z

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 (1997) 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 establish legal liability**.*

Disclaimer:

This report is given without prejudice to the rights of the CAA, which are reserved.

1. FACTUAL INFORMATION

1.1 History of Flight

1.1.1 According to witness' statement: on the 10th August 2012 at 11:00Z he was at Cathkin valley area in Winterton. He was flying his glider when he heard about the accident over the radio transmission. The witness then flew to the direction of the accident site to see what had happened. Firstly he executed a fly past then landed the glider and rushed to the accident scene. He arrived at the scene at approximately 11:30Z. There was a helicopter at the scene to render assistance to the pilot but they found that the pilot was fatally injured.

1.1.2 Another second witness stated that: On the 10th August 2012 at Cathkin valley in Winterton. When he looked at the glider he saw the ballistic parachute deploying and saw the glider going down on the other side of the airfield. He rushed over to the direction where the glider has disappeared only to find that it has been involved in an accident. On arrival at the scene he noticed that it was the white self-launch glider. When the witness arrived at the scene he also found other people there.

1.1.3 GPS download shows the following:

Fifth and last thermal attempt was at 13:22 over the ridge immediately West of the airfield. Pulled up to left - found sink. Made 1 attempt to centre still turning Left. Reversed direction to Right at 12:24. Made a rapid 180 degree while descent rate increased steadily. Flew directly towards the airfield with airspeed increasing rapidly

from 150km/h to over 230km/h in 6-9 seconds. Pulled up slowing to 180km/h. Made a parabolic descent to impact close to vertical. Wind was still, rising to 11-16km/h from the East (around 20deg) for the latter part of the flight.

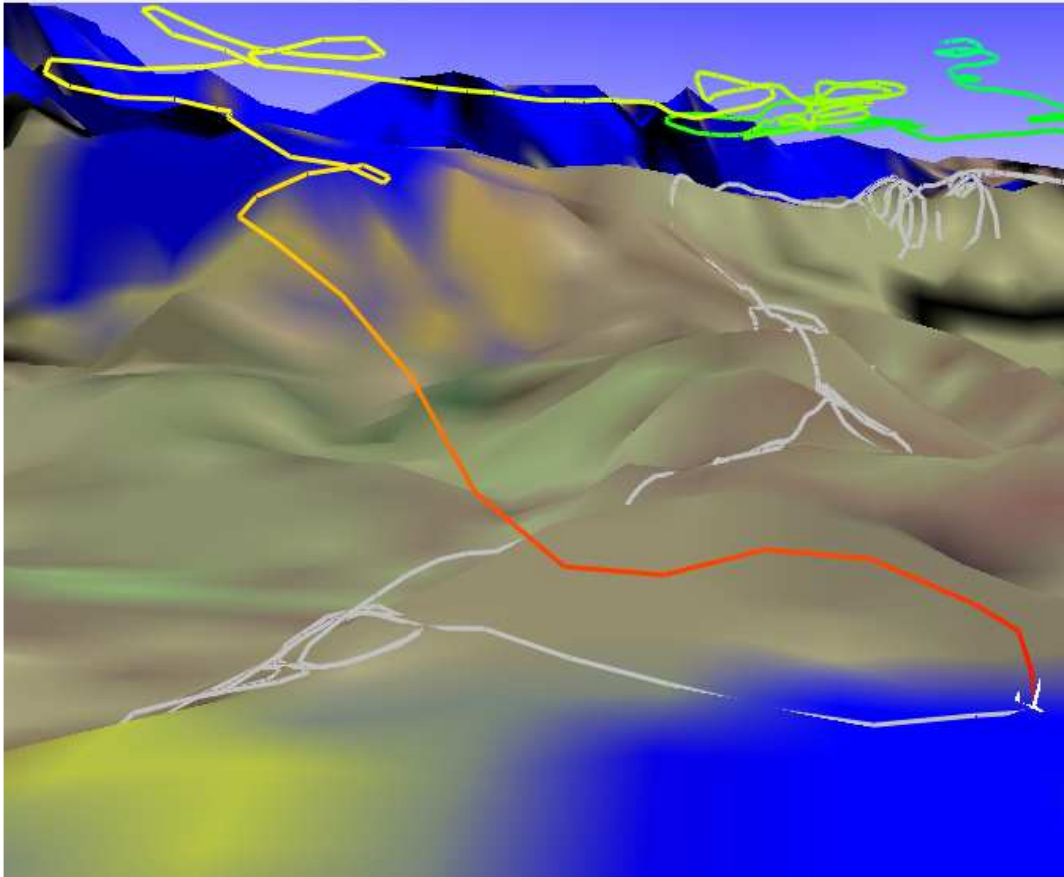
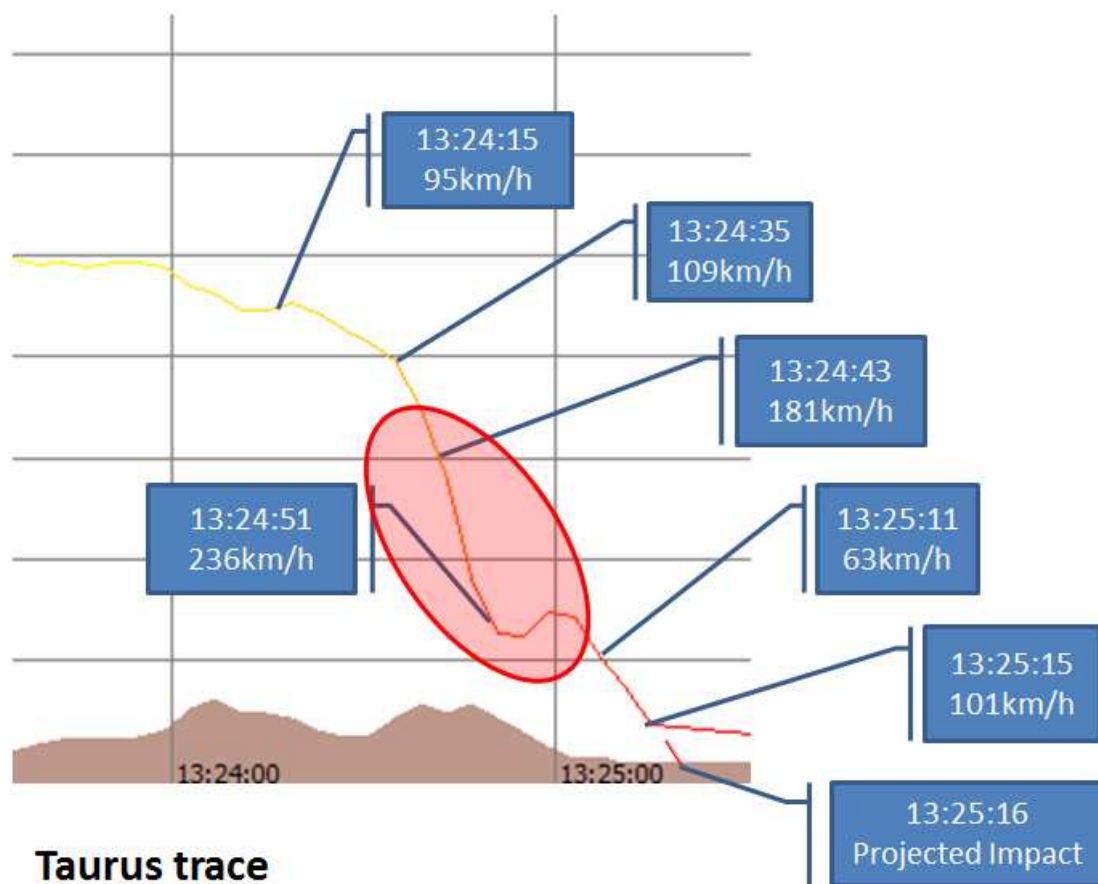


Figure 1: Flight path as downloaded from the GPS

- 1.1.4 According to the third witness: after he had just landed and standing next to the powered glider facing approximately 240° (South Easterly direction), he heard a sound of “woof woof” and saw the Taurus approximately 500m at approximately 500 feet AGL(Above Ground Level). It was heading straight towards the witness. The wings of the Taurus were flexing and oscillating up and down along the entire span. The powered glider also appeared to be longitudinally unstable.
- 1.1.5 As the powered glider passed to the right of his position he noticed the wheel bay doors opening and closing in the same sequence as the up and down pitching oscillation movement of the aircraft. With a shallow angle of bank the powered glider turned left onto a northerly heading. At approximately a height of 250 AGL, while still pitching up and down and flying away at an estimated speed of around 160km/hr the ballistic parachute deployed. The chute failed to blossom and appeared to suffer shroud line failure. The resultant drag appeared to pitch the powered glider’s nose up; it dropped its right wing and dived vertically into the ground on the adjacent game farm.
- 1.1.6 It took approximately 15 minutes to gain access to the farm and when arriving at the crash site a helicopter was already at the scene. The pilot was fatally injured in the cockpit with his straps undone. The helicopter pilot advised that the pilot was strapped into his seat and he had undone the pilot’s straps.



Red ellipse shows approximately where the Flap-5 Vne of 130km/h was exceeded.

Figure 2: Speed as downloaded from the GPS

1.2 Injuries to Persons

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

1.3 Damage to Powered glider

1.3.1 The glider was destroyed in the accident.



Figure 3: indicate the canopy compartment



Figure 4: indicate the wreckage of the powered glider

1.4 Other Damage

1.4.1 None.

1.5 Personnel Information

Nationality	South African	Gender	Male	Age	55
Licence Number	0270216252	Licence Type	Glider		
Licence valid	Yes	Type Endorsed	Yes		
Ratings	None				
Medical Expiry Date	31 October 2012				
Restrictions	Corrective lens, Hypertension protocol				
Previous Accidents	None				

Flying Experience :

Total Hours	80.2
Total Past 90 Days	3.22
Total on Type Past 90 Days	3.22
Total on Type	80.2

Note: The hours indicated in the column above do not include the four flights prior to the accident.

1.6 Powered glider Information

Airframe :

Type	Pipistrel Taurus	
Serial Number	099 T 503	
Manufacturer	Pipistrel D.O.O	
Year of Manufacture	2011	
Total Airframe Hours (At time of Accident)	15.08	
Last Annual Inspection (Date & Hours)	22 June 2011	6.25
Hours since Last Annual Inspection	8.83	
Authority to Fly (Issue Date)	21 July 2011	
C of R (Issue Date) (Present owner)	14 April 2011	
Operating Categories	Private	

Engine :

Type	Rotax 503
Serial Number	7078812
Hours since New	15.08
Hours since Overhaul	TBO not yet reached

Propeller :

Type	Wood comp
Serial Number	W099
Hours since New	15.08
Hours since Overhaul	TBO not yet reached

Note: The engine of the powered glider was not in use at the time of the accident (as it was stored in the engine bay). The powered glider's engine is only in use for take-off only or in case there is no thermal/s.

1.7 Meteorological Information

1.7.1 The weather information included in the column below was obtained from the South African Weather Services:

Wind direction	330°	Wind speed	06kts	Visibility	No data
Temperature	21°C	Cloud cover	No data	Cloud base	No data
Dew point	-5°C				

Note: The weather information is for FALY which is approximately 27nm from where the accident occurred. FALY is the nearest location to the accident site where weather information could be obtained.

1.7.2 The weather information included in the column below was obtained from the witness's statement:

Wind direction	350°	Wind speed	04kts	Visibility	+30km
Temperature	21°C	Cloud cover	No data	Cloud base	No data
Dew point	Unknown				

1.8 Aids to Navigation

1.8.1 The powered glider was equipped with standard navigation equipment approved by the regulator. No defects were reported prior to the accident.

1.9 Communications.

1.9.1 The powered glider was equipped with fixed VHF (very high frequency) radio communication equipment approved by the regulator. No defects were reported prior to the accident.

1.10 Aerodrome Information

1.10.1 The accident occurred near the FALQ airfield on the GPS: S28° 59.11.0' E029° 35.2' the elevation was approximately 4200feet.

Aerodrome Location	El Mirador FALQ	
Aerodrome Co-ordinates	S28° 59' 11,0" E029° 29' 35.2"	
Aerodrome Elevation	4200 feet	
Runway Designations	06	24
Runway Dimensions	800m x 25m	800m x 25m
Runway Used	24	
Runway Surface	Grass	
Approach Facilities	Nil	

Note 1: FALQ (left hand pattern) for runway 24 uphill for landing and runway 06 downhill

for take-off. On the day of accident the pilot was to execute right hand pattern tear drop.

Note 2: The above aerodrome information is obtained from the electronic airfield directory. Though the airfield was registered it does no longer appear on the AIP (Aeronautical Information Publication)

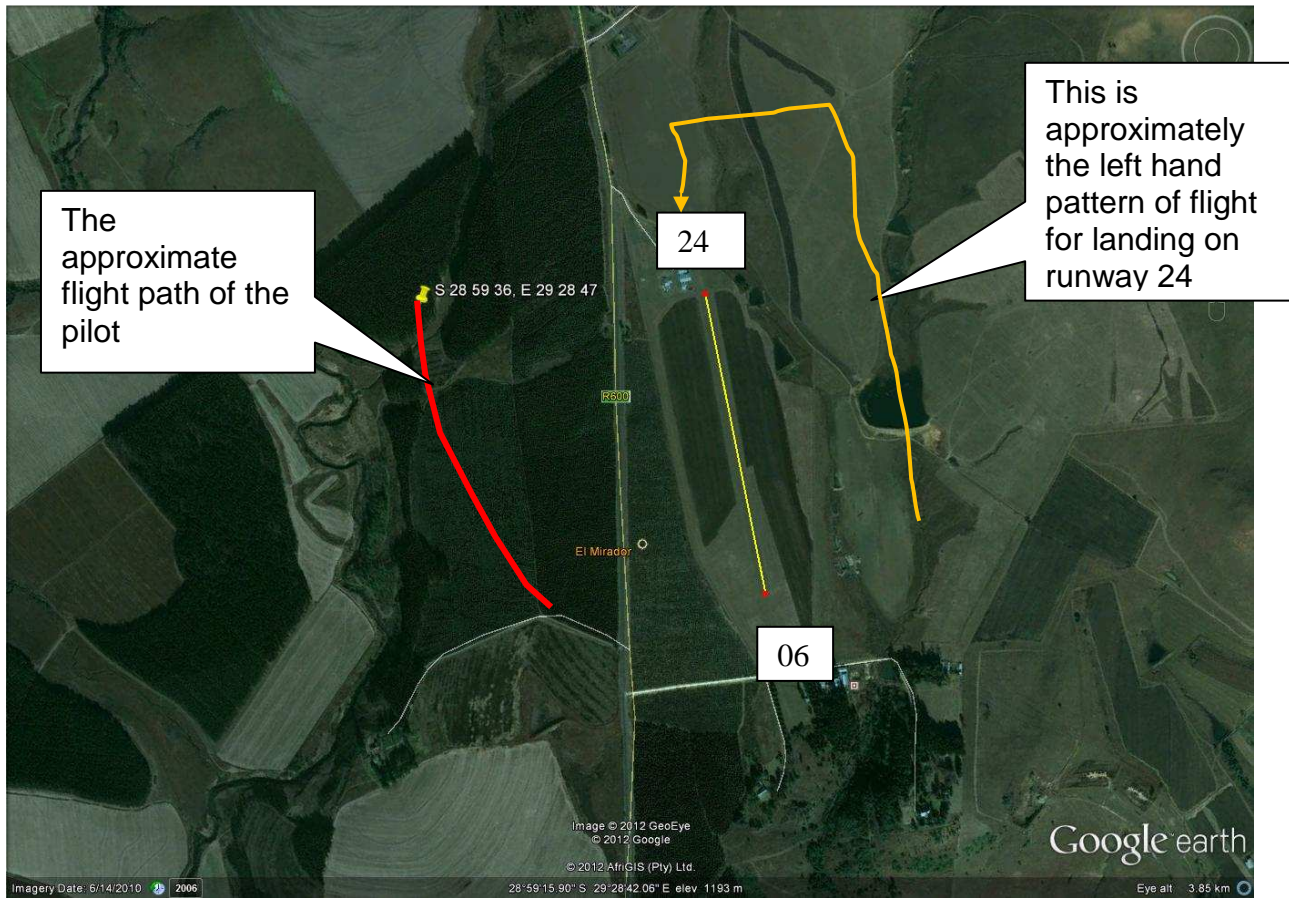


Figure 5 indicate the picture of airfield obtained from Google earth

1.11 Flight Recorders

- 1.11.1 The powered glider was not fitted with Flight Data Recorder or a Cockpit Voice Recorder), nor was it required by regulations to be fitted to this powered glider type.
- 1.11.2 The powered glider was fitted with the flam and the LX9000F. The flam indicates the position of the glider in flight. LX9000F indicate the speed and the height of the aircraft.

1.12 Wreckage and Impact Information

- 1.12.1 The witness saw the powered glider at approximately 500 feet. The powered glider impacted the ground in a nose down attitude followed by the right hand side. The right hand wing was ruptured as a result of impact and the left hand wing was still intact and had approximately quarter fuel. The powered glider was destroyed during impact.



Figure 6: Indicate the first point of impact



Figure 7: Indicate the wreckage of the powered glider

1.13 Medical and Pathological Information

1.13.1 The pilot was fatally injured.

1.13.2 The post mortem findings were as follows:

- Multiple rib fractures
- Probable lacerations of the heart
- Fracture of the spine at three places. Crushed cauda equine at lumbar spine no.2

Cause of the death: was a blunt trauma to the chest.

1.14 Fire

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

1.15 Survival Aspects

1.15.1 The accident was considered not survivable as the cockpit area was destroyed during the impact forces. The helicopter pilot reported that the pilot was properly restrained with the safety belt and harness. Due to the impact forces and damage to the cabin area the pilot did not survive the accident.

1.16 Tests and Research

1.16.1 None.

1.17 Organizational and Management Information

1.17.1 This was a private flight.

1.17.2 The Authority to fly of the powered glider expired on the 22 June 2012.

1.18 Additional Information

1.18.1 The engine of the powered glider was not in use at the time of the accident. The powered glider's engine is only in use for take-off only or in case there is no thermal.

1.18.2 The flaps setting was at 5°, as per the checklist before turning base the flaps should be at "T"

1.18.3 *The following information is extracted from the Pipistrel flight manual and maintenance manual*

1.18.3.1 Flutter

*is described as the oscillation of control surfaces. In most cases it is caused by abrupt control deflections at speeds or in excess of VNE. As it occurs the ailerons, elevator or even the whole powered glider start to vibrate violently. Should flutter occur pull on the stick (and reduce power immediately)! **WARNING! Fluttering of***

ailerons or tail surfaces may cause permanent structural damage or inability to control the powered glider. After a safe landing, the powered glider must undergo a series of check-ups performed by authorised service personnel to verify airworthiness.

1.18.3.2 Exceeding VNE (Speed Never Exceed)

Should VNE be exceeded, reduce airspeed slowly and continue flying using gentle control deflections. Land safely as soon as possible and have the powered glider verified for airworthiness by authorised service personnel.

1.18.3.3 Parachute rescue system

System description.

Depending on the canopy size, the main canopy system is open and fully inflated above the powered glider between 1.5-6.0 seconds after being fired with regard to the flight speed. This means that a rescue can be successful from as little as 30m to 150m over the ground (98 feet to 492 feet) depending on the installation position of the powered glider, its speed and trajectory. The necessary height needed for a rescue is deduced from measured figures in horizontal flight up to the stated VNE of powered glider in its MTOW (Maximum Take-off Weight). These figures are stated in the technical parameters of the system. It is possible to aim the rocket in any direction but the best direction is vertical to the lengthwise axis of the plane in an upward or slightly oblique aft direction. The rocket system has been designed with sufficient power reserve so that it can pull out the chute even under extreme conditions ranging in temperatures from -40°C to +60°C

Use of parachute rescue system

In situation such as:

- Structural failure
- Mid-air collision
- Loss of control over powered glider
- Engine failure over hostile terrain
- Pilot incapacitation (including heart attack, stroke, temporary blindness, disorientation) the parachute **should** be deployed

Prior to firing the system:

- Shut down the engine and set master switch to OFF (key in full left position)
- Shut both fuel valves
- Fasten safety harness tightly
- Protect your face and body.

1.18.3.4 Descent and final approach

Landing the Taurus ultralight motorglider with the engine out should be strongly avoided due to lubrication problems with the engine on idle. It will severely decrease the life-time of critical component as well. Therefore it is recommended that you conduct the approach and landing like a glider with the propulsion unit in its retracted (DOWN) position. On downwind (150m-200m, 500-700 feet) maintain a speed of 100km/h (55kts) and lower and secure the landing gear. Before turning base, set the flaps to T stage, and reduce your speed to 90-95km/h (48-51kts). Set trim to neutralise stick force if necessary.

CAUTION! When descending, make sure the propulsion unit is retracted.
CAUTION! With flaps in L position only half way aileron deflections are permitted.

On final set flaps to L position only if the runway is very short and a steep angle of arrival is required. Align with the runway and extend airbrakes while maintain an airspeed of 90-95km/h. Use airbrakes to control your approach glide path.



Figure: 8 indicate the flap setting of +5°

1.18.3.5 Retracting and extending propulsion unit in flight

This procedure applies only for retracting/extending the propulsion unit as an intentional event, be aware you may also lose up to 100m (300feet) of altitude during this procedure. If under power set throttle to idle and ignition on first. Reduce speed to 80km/h (43kts) and set flaps to 1st stage. Continue decelerating towards 70km/h (40kts). With master switch ON and ignition OFF select the desired propulsion unit position (UP or DOWN) on the Ibis II. The system will complete the retraction/extension by itself.

1.18.3.6 Stall speeds

Stall speeds at MTOM are as follows:

Flaps in negative position; -5° (UP): 75km/h (40.5kts)

Flaps in neutral position; 0° (neutral): 71km/h (38.3kts)

Flaps in 1st position; +5° (down): 68km/h (36.7kts)

Flaps in T position; +9° (down): 65km/h (35.0kts)

Flaps in L position; 18° (down): 63km/h (34.0kts)

1.18.3.7 VNE (Velocity Never to be exceeded) 225km/h or 121kts. Should the VNE be

exceeded, land as soon as possible and have the aircraft verified for airworthiness by authorised service personnel. The pilot flew directly towards the airfield the speed increasing rapidly from 150km/h to over 230km/h in 6-9 seconds.

1.19 Useful or Effective Investigation Techniques

1.19.1 None.

2. ANALYSIS

- 2.1 The witness saw the wings of the Taurus flexing and oscillating up and down along the entire span. The powered glider also appeared to be longitudinally unstable, he also noticed the wheel bay doors opening and closing in time with the pitching oscillations. This may affect the C.O.G (centre of gravity) and the powered glider to loose altitude. Based on the witness statement and evidence found during the on-site investigation it is concluded that the powered glider went into flutter. Flutter is the oscillation of control surfaces in most cases caused by abrupt control deflections at speeds in excess of VNE.
- 2.2 The flaps setting were at +5°, the recommended speed is 68km/h. Prior to the accident the powered glider's speed was at approximately 211km/h which is above the limitation. The pilot deployed the ballistic parachute at approximately 500 feet above ground level which is within the manufacture's limitation. The parachute can be used in the situation such as loss of control over the powered glider, pilot incapacitation and other factors. The pilot exceeded the speed limitation which caused him to lose control of the powered glider during the flight which resulted in a stall before, the powered glider impacted with the ground.
- 2.2 The powered glider's authority to fly expired on the 22 June 2012. At the time of accident the engine of this powered glider was stowed as it is only used for take-off or in case there is no thermal.
- 2.3 The available information revealed that fine weather conditions prevailed in the area at the time of the flight and subsequent accident. Therefore it is concluded that weather was not a contributory factor to the accident.

3. CONCLUSION

3.1 Findings

- 3.1.1 The pilot had a valid glider and private pilot licence and was properly rated at the time of the accident.
- 3.1.2 The pilot was the holder of the aviation medical certificate which had the following restrictions in his licence: Corrective lenses and hypertension protocol.
- 3.1.3 The authority to fly expired on the 22 June 2012.
- 3.1.4 The engine of this powered glider type was stowed as it is only used for take-off or in case there is no thermal.

- 3.1.5 The ballistic parachute was deployed at approximately 500 feet above ground level.
- 3.1.6 The flaps setting were at +5°, the recommended speed for this setting is 68km/h.
- 3.1.7 The flaps setting before turning base should be at "T".
- 3.1.8 The pilot extended the wheels partially and retracted them again within a short period of time.
- 3.1.9 Weather did not contribute to the accident.

3.2 Probable Cause/s

- 3.2.1 The pilot exceeded the speed limitation which caused him to lose control of the Taurus/powerd glider which resulted in a stall before the powered glider impacted with the ground.

4. SAFETY RECOMMENDATIONS

- 4.1 None.

5. APPENDICES

- 5.1 None.

Compiled by:

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Date:

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