SOUTH AFRICAN CIVIL AVIATION AUTHORITY

Section/division **Accident and Incident Investigations Division** Form Number: CA 12-57

LIMITED ACCIDENT INVESTIGATION

Reference Number	CA18/2/3/9958								
Classification	Accident	**Date**	12 February 2021		**Time**	1020Z			
Type of Operation	Part 105, Parachute Dropping								
Location									
Place of Departure	Carletonville (FACR)	Place of Intended Landing	(FACR)						
Place of Accident	771m from the threshold of the south-side runway in Carletonville Aerodrome (FACR)								
GPS Co-ordinates	Latitude	S26°22'49.8''	Longitude	E027°21'38.6''	Elevation	5029 ft			
Aircraft Information									
Registration	ZS-WWO								
Model/Make	AL-60C-M4 Kudu								
Damage to Aircraft	Substantial	Total Aircraft Hours	4920						
Pilot-in-command									
Licence Type	Private Pilot Licence	Gender	Male	Age 56					
Licence Valid	Yes								
Total Hours on Type	869	Total Flying Hours	3058.7						
People On-board	2 + 6	Injuries	2 + 6	Fatalities	0	Other (On Ground)	0		
What Happened									

On 12 February 2021, an AL-60C-M4 Kudu with registration mark ZS-WWO took off from Carletonville Aerodrome (FACR) with the pilot-in-command (PIC) and the safety pilot, as well as six skydivers on-board. The intention of the flight was to drop off the six skydivers in the Carletonville area and return to FACR. The PIC stated that he uplifted 400 litres of Jet A-1 fuel prior to the flight, which is the maximum fuel capacity of this aircraft. The PIC further stated that immediately after take-off during the climb phase at approximately 250 feet (ft) above ground level (AGL), the aircraft lost thrust and could not climb any further. Thereafter, it started to sink. The safety pilot switched on the isolator (ISO) button to isolate the power lever "throttle" and pushed the fuel condition lever forward to try and feed fuel to the engine to restore power. During the process of restoring power, the aircraft lost height and it impacted the ground with its right-side main landing gear first, then the left-side main landing gear, followed by the left wing. The aircraft spun around clockwise and came to rest facing the direction of its approach. The aircraft sustained substantial damage during the accident sequence.

A witness who was a passenger on-board (one of the parachute jumpers) stated that the aircraft used about ¾ of the runway before rotation. He also stated that after take-off at approximately 250ft AGL, the engine was heard reducing to idle power. He stated that when he looked at the

control panel between the two seats, he saw that the throttle lever was in idle position with no hand (of either pilot) on it. He then saw the safety pilot engage the isolator switch and, thereafter, he heard the engine spooling up from the input of the fuel condition lever.

At this point he (witness) realised that they were going to crash. The witness asked one of the skydivers to open the door. But before the door was opened, the aircraft crashed and knocked all skydivers unconscious. Post-accident, it was discovered that the safety pilot seat had also collapsed and was unconscious as well. The PIC and the safety pilot sustained minor injuries, while the skydivers sustained serious injuries. All occupants were taken to hospital in ambulances after first aid was administered to them.

Post-accident investigation revealed the following:

- One main filter, firewall filter and fuel control inlet filter were found to be clean.
- No airlocks were found in the fuel system.
- Electro-hydraulic transducers were tested, and it was found that the turbine start limit monitor system was deactivated, in other words, it could not have been activated during the flight, which could cause a reduction in power.
- Flaps were found selected up.
- Fuel flow systems were checked and found serviceable.
- Electrical fuel pumps were checked and found serviceable.
- No water or impurities could be found in the filters.
- The pilot reported that after take-off they retracted flaps and the aircraft started to sink. The safety pilot took over controls and retarded the power lever. The investigation established that the actions of both pilots resulted in induced drag and loss of power, thus, increased the rate of descent or sinking rate, which resulted in a crash. The mass and balance report confirmed the aircraft was within the safety balance envelope.

Probable cause:

The PIC had, during the climb phase at about 250ft AGL, prematurely retracted the flaps and the aircraft entered a sink mode due to loss of lift. The safety pilot panicked and confused the sink mode (feeling) with the loss of thrust and, in response, pulled back the throttle lever, which exacerbated the situation. To recover the engine power, the safety pilot hastily opened the throttle, and this resulted in the compressor stalling the engine.

Figure 1: The aircraft as it came to rest.

Safety Action/s

None.

Safety Message and/or Safety Recommendation/s

It is recommended to the Director of Civil Aviation that the SACAA should consider evaluating the effectiveness of its Part 105 operation oversight programme, as well as to ensure that Part 105 operations are conducted at the same level of safety as Part 121 and 135 operations.

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****.*

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

This report is issued by:

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