SOUTH AFRICAN CIVIL AVIATION AUTHORITY

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

LIMITED SERIOUS INCIDENT INVESTIGATION REPORT

Reference Number	CA18/3/2/1374										
Classification	Serious Incident	**Date**	3 October 2021	**Time**	0530Z						
Type of Operation	Private (Part 91)										
Location											
Place of Departure	Eagles Creek, Gauteng Province	Place of Intended Landing	Eagles Creek, Gauteng Province								
Place of Incident	Magaliesburg General Flying Area										
GPS Co-ordinates	Longitude	S 25°53'47"	Latitude	E 028°01'55"	Elevation	4700 ft					
Aircraft Information											
Registration	ZS-SWX										
Model/Make	Grumman American AA-5 Traveler (Serial number: AA5-0040)										
Damage to Aircraft	Minor	Total Aircraft Hours	3201.2								
Pilot-in-command											
Licence Type	Private Pilot Licence (Aeroplane)	Gender	Male	Age	59						
Licence Valid	Yes										
Total Hours on Type	7.6	Total Flying Hours	736.8								
People On-board	1 + 1	Injuries	0	Fatalities	0	Other (on ground)	0				
What Happened											

On 3 October 2021 at about 0530Z, a pilot and a passenger on-board a Grumman American AA-5 Traveler aircraft with registration ZS-SWX were on a private flight from Eagles Creek Airport in Gauteng province, with the intention to return to the same take-off airport. The flight was conducted in visual meteorological conditions by day and under the provisions of Part 91 of the Civil Aviation Regulations (CAR) 2011 as amended.

The pilot reported that he conducted a pre-flight inspection on the aircraft and found no anomalies. The aircraft was started, taxied for the pre-flight run-up, and took off without incident. After 30 minutes into the flight at 6000 feet (ft) overhead Buffelspoort Dam, the engine cowling detached and separated from the nose section before falling to the ground. The pilot flew back to Eagles Creek Airport and landed safely without further incident.

After landing, the pilot inspected the aircraft and noticed no further damages. The two occupants reported no injuries. The damage was limited to the engine cowling. Later, the operator travelled by road in search of the missing engine cowling cover which was located on the ground near Buffelspoort Dam.

What was found:

The pilot was initially issued a Private Pilot Licence (PPL) on 7 April 2005; his revalidation was issued on 13 July 2021 with an expiry date of 31 July 2022. His Class II medical certificate was issued on 6 July 2021 with an expiry date of 31 July 2022 and with a restriction to wear corrective lenses.

The aircraft maintenance records were up to date and revealed that the aircraft was maintained in accordance with (IAW) the manufacturer's specifications and procedures. Evidence showed that the operator complied with all existing Airworthiness Directives (AD) and Service Bulletins (SB) for the AA-5. The aircraft had undergone a mandatory periodic inspection (MPI) on 8 October 2020 at 3148.50 airframe hours and was flown a further 52.7 airframe hours.

1) Following the incident, the pilot reported that he recalled the engine cowling being properly latched and secured when checked during pre-flight inspection, as this happened 30 minutes into the flight. During post-incident inspection, the pilot discovered that the port side bottom latch clip was bent, but he could not determine if this occurred before or during flight, considering the incident of the cowling detaching during flight. The cowling latch brackets on the lower cowling were found bent, indicating that the latches were fastened when the top cowling separated.

2) Part of the hinge bracket had sheared but it was still attached to the engine firewall bracket and nose cowl by the screws designed to hold it in place; and there was evidence that the screws did not shear. There was no other damage found on the airframe. Once the top cowling was located, the latches were inspected and found to be serviceable. Following the incident, the aircraft maintenance organisation (AMO) replaced the engine cowling and latches.

3) The pilot further reported that the port side cowl would not, under normal conditions, become unlatched after being secured during the engine visual pre-flight inspections as everything can be inspected from the starboard side. The pilot stated that it was probable that the failure started from the port side latches.

4) It is likely that the port side cowl latches were weakened and lost effectiveness/integrity over time during the flight when the cowling cover was raised by airflow from the starboard side. It is also likely that during pre-flight inspections, the pilot may have overlooked whether the port side cowl latches were properly secured. It is probable that during flight, with air flowing through the cowling, the latches further loosened, causing the cover to detach from the starboard side. Part of pre-flight inspection from the Pilot's Operating Handbook (POH) requires that the cowling be checked for security.

Figures 1 and 2: The engine bay and cowling cover that detached in-flight. The circle in blue indicates the starboard normal latch hook; and the circle in lime green shows the stretched hook. (Source: Pilot)

Probable Cause:

The engine cowling separated in-flight due to the starboard side engine cowl latches that were not properly secured.

Contributing Factor:

Inadequate pre-fight inspection conducted prior to the flight.

Safety Action/s

None.

Safety Message

Pilots are encouraged to ensure that they conduct a thorough and proper pre-flight inspection before each flight.

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
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This report is issued by:

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