REPUBLIC OF NAMIBIA

MINISTRY OF WORKS AND TRANSPORT

Directorate of Aircraft Accident and Incident Investigations

Accident Reference: ACCID/10282020/02-09

Aircraft Accident Investigation Report

Maule M6 (V5-EMC)

RELEASE DATE: 22 AUGUST 2022

Aircraft Accident Report

DESCRIPTION OF OCCURRENCE: (LOC-G) Loss of control on ground.
TYPE OF OPERATION: Private.
AIRCRAFT TYPE: Maule M6 (V5-EMC)
LOCATION. Eros Airport 22°36′44″S 017°04′50″E
DATE AND TIME: 28th October 2020 (10:55 UTC).

Foreword

This report presents the information, data analysis, conclusions, and safety recommendations reached during the investigation. The purpose of the investigation was to establish the circumstances surrounding this accident.

In accordance with the provisions of Annex 13 to the Convention on International Civil Aviation Organization, the accident's analysis, conclusions, and safety recommendations contained therein are intended neither to apportion blame nor to single out any individual or group of individuals. The main objective was to identify the systematic deficiencies and draw lessons, from the occurrence, which might help to prevent accidents and incidents in the future. To this end, many a time, the reader may be interested in whether or not an issue was a direct cause of the accident (that has already taken place), whereas the investigator is mainly concerned with the prevention of future accidents/incidents.

As a result, the usage of this report for any purpose other than (the latter and spirit of Annex 13 and other relevant statutes) prevention of similar occurrences in the future might lead to erroneous interpretations and applications.

ABBREVIATION

AD	-	Airworthiness Directives
AMO	-	Aircraft Maintenance Organization
AME	-	Aircraft Maintenance Engineer
DAAII	-	Directorate of Aircraft Accident and Incident Investigation
ELT	-	Emergency Locator Transmitter
ICAO	-	International Civil Aviation Organization
LOC-G	-	Loss of Control on Ground
NCAA	-	Namibia Civil Aviation Authority
NAMCARs	-	Namibian Civil Aviation Regulations
NAMCATs	-	Namibian Civil Aviation Technical Standards
CPL	-	Commercial Pilot License
MPI	-	Mandatory Periodic Inspection
SB	-	Service Bulletin
TBO	-	Time Before Overhaul
TSN	-	Time Since New
TSO	-	Time Since Overhaul
UTC	-	Universal Time Co-ordinated

Ministry of Works and Transport

ACCID/10282020/02-09

DIRECTORATE OF AIRCRAFT ACCIDENT INVESTIGATION
ACCIDENT REPORT – EXECUTIVE SUMMARY

Aircraft Registration	V5-EMC	**Date of Accident**	28th October 2020	**Time of Accident**	10:55 UTC
Type of Aircraft	MAULE M6		**Type of Operation**	Private	

Pilot- In - command License Type	CPL	**Age**	59	**License Valid**	VALID
Pilot-In-command Flying Experience	Total Flying Hours	3300		**Hours on Type**	253

Last point of departure	Swakopmund
Next point of intended landing	Eros Airport

Location of the accident site with reference to easily defined geographical points (GPS readings if possible)

Eros Airport 22°36′44″S 017°04′50″E

Meteorological Information	Wind 10-15 kts 090 º Visibility: +10 km, Temperature: 30ºC, Cloud Cover: CAVOK,

Number of people on board	1	**No. of people injured**	0	**No. of people killed**	0

Synopsis

On the 28th of October 2020, a Maule M6, with registration V5-EMC departed from Swakopmund for a private flight to Eros airport. On board were the pilot and his dog.

The pilot stated that he had flown the aircraft that morning to Windhoek, and the flight was uneventful. After touchdown, the wind from the east pushed the vertical stabilizer (tail) of the aircraft to the left, which forced the nose of the aircraft to the right. Subsequently, the aircraft veered to the right of the runway. In trying to get back to the runway centerline , the pilot applied full left rudder, added a small amount of power and then the aircraft went to the left, crossing the runway and ended up on the left side of the runway, where a ground loop occurred.

The pilot was a holder of a valid Commercial Pilot License. His medical certificate was valid until 30/11/2020. The aircraft type was endorsed in his license.

The wing tips sustained substantial damage. The aircraft was taxied to the hangers of a local AMO, who examined the damage and took it in for repairs.

The Investigation was organized and conducted by the Directorate of Aircraft Accident and Incident Investigation (DAAII), who were informed telephonically by Air Traffic Controller (ATC). DAAII instituted an Investigation into the occurrence. The Minister of Works and Transport Ministry was responsible for the release of the official final accident report.

The weather was fine with good visibility. However, the pilot reported gusting crosswind winds affecting the directional control on the ground.

The aircraft was repaired by a local AMO with approval no AMO 04, using MM AC43.13-2B 03/03/2008, NAM CATs and CAR's as amended. A Certificate Relating to Maintenance of An Aircraft (work order no: 66102) was issued on 30/11/2020.

The last Annual Inspection (AI) was carried out and certified on 06/08/ 2020, in accordance with the Maule Maintenance Manual and NAMCARS 2001 by a Namibian AMO, at 1136.80 hours. The Certificate of Release to Service was issued on 06/08/2020.

Probable Cause: Loss of control (LOC-G).

Contributing factor (s):

Gusting Crosswinds

AIRCRAFT ACCIDENT REPORT

Name of Owner/Operator	: South Star Aviation CC
Manufacture	: Maule Aircraft Co.
Model	: M6 235
Nationality	: Namibian
Registration	: V5 - EMC
Location	: Eros Airport
Date	: 28th October 2020 Time: 10:55 UTC

All times given in this report are in Co-ordinated Universal Time (UTC).

Disclaimer:

The report is given without prejudice to the rights of the Directorate of Aircraft Accident and Incidents Investigations, which are reserved.

Purpose of the Investigations:

In terms of the Namibia Civil Aviation Act (Act No. 6 of 2016) and ICAO Annex 13, this report was compiled in the interest of the promotion of aviation safety and the reduction of risk of aviation accidents or incidents and **not to establish blame or legal liability.**

This report contains facts relating to aircraft accidents or incidents that have been determined at the time of issue. The report may therefore be revised should new and substantive facts are made available to the investigator (s).

1. FACTUAL INFORMATION

1.1 History of Flight

1.1.1 On the 28th of October 2020, 09:30. a Maule M6, with registration V5-EMC departed from Swakopmund for a private flight to Eros airport. On board were the pilot and his dog.

1.1.2 According to the pilot, the flight was uneventful from Swakopmund. He stated that he approached Eros airport and requested clearance to land which was granted by the ATC.

1.1.3 After touchdown, the wind from the east pushed the vertical stabilizer (tail) of the aircraft to the left, which forced the nose of the aircraft to the right. Subsequently, the aircraft went off the runway, to the right of the runway. In trying to get back onto the runway, the pilot applied a full left rudder, added a small amount of power and then the aircraft went to the left, crossing the runway and ended up on the left side of the runway, where a ground loop occurred.

1.1.4 During the process, the aircraft's wing tips contacted the ground and the carbon fibre wingtips were substantially damaged.

1.1.5 The aircraft was taken to a local Aviation Maintenance Organization (AMO) for further damage assessment and subsequent repair.

1.1.6 The pilot did not sustain any injury.

1.2 Injuries to Persons

Injuries	Pilot	Crew	Pass.	Other
Fatal	-	-	-	-
Serious	-	-	-	-
Minor	-	-	-	-

1.3 Damage to aircraft

1.3.1 The aircraft was substantially damaged. More damage to the aileron was revealed after further inspection at the AMO.

1.3.2 The AMO Certificate Relating to Maintenance of An Aircraft (work order no.66102) indicated that

- They repaired the right-hand wing tip and trailing edge
- They carried out a composite repair on the left wingtip
- They repaired and reskinned the aileron
- They repaired the left-hand wing tip structure.

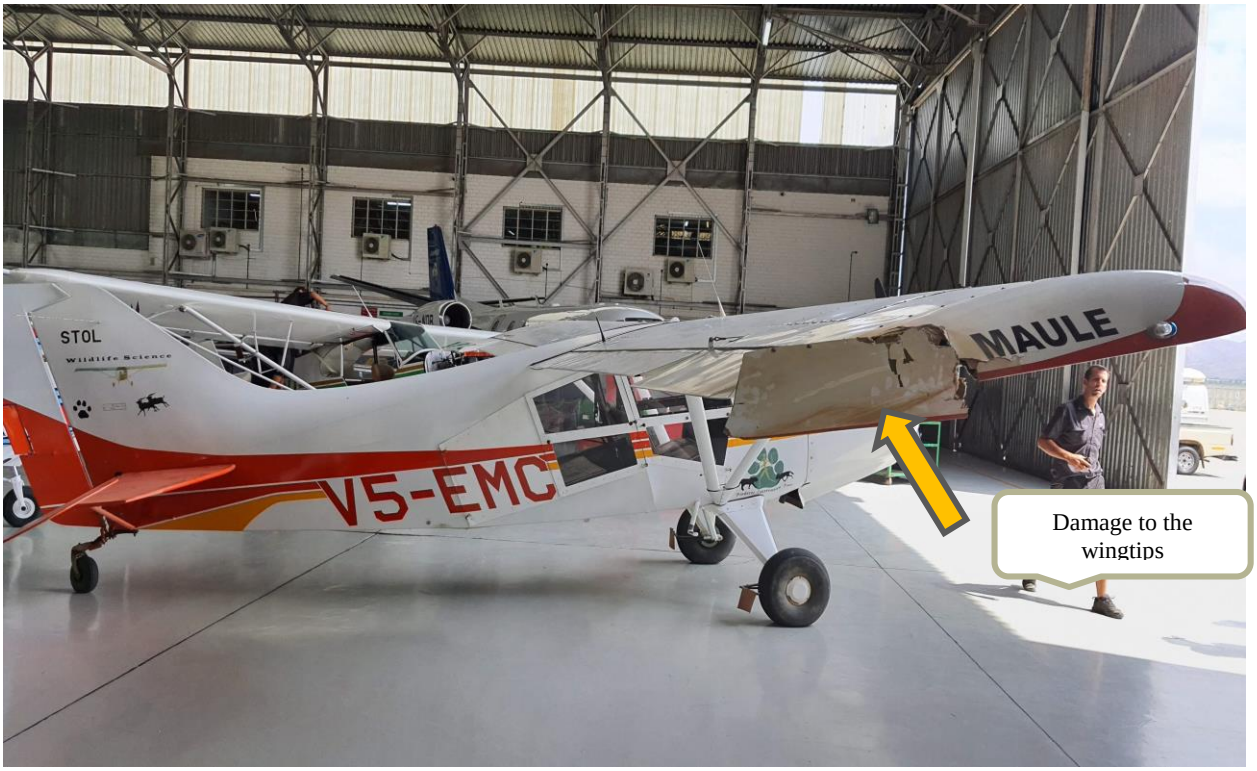

Figure 1: *The damage at the wing tips...*

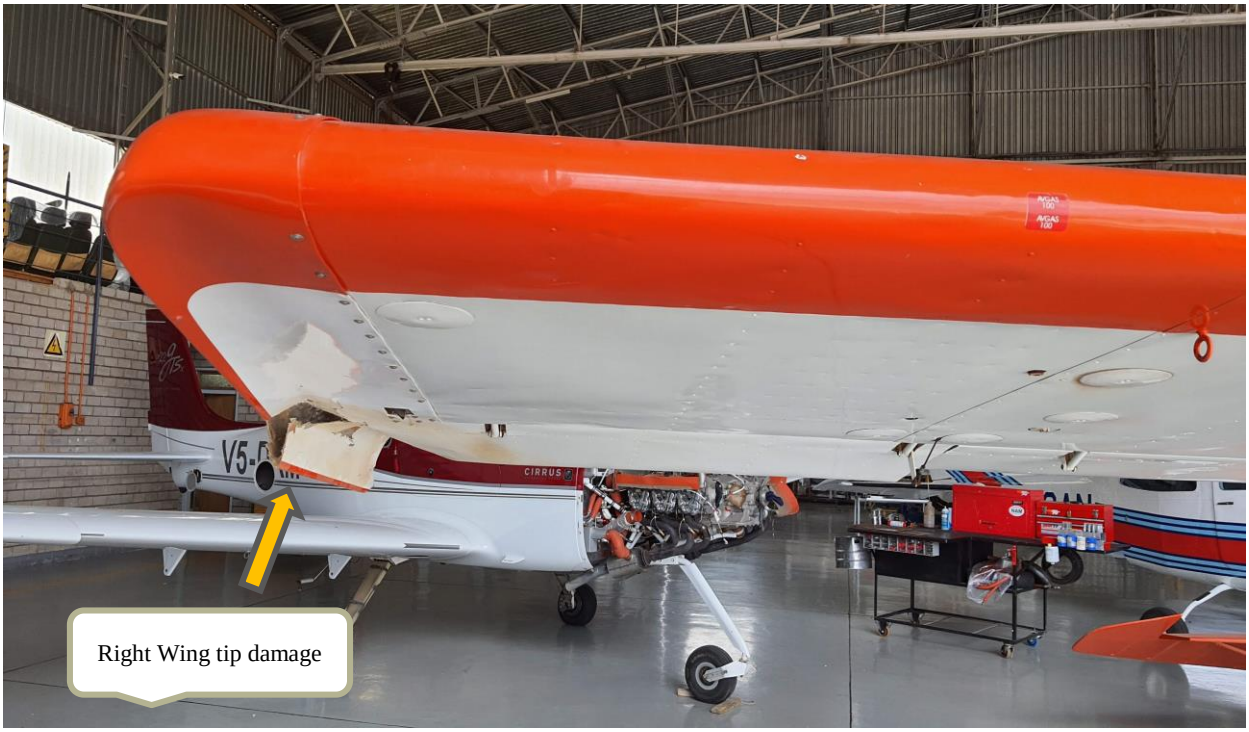

Figure 2: illustrating the carbon fibre wingtip, which was damaged.

1.4 Other Damage

1.4.1 There was no other damage.

1.5 Personnel Information

1.5.1 Pilot-in-in command

Nationality		South African			
Licence No	CA 73025	Gender	Male	Age	59
Licence valid		Valid	Type Endorsed	YES	
Type Ratings		Single Piston Engine Aeroplane Land (5700kg or less)			
Medical Expiry Date		30/11/2020			
Restrictions		Corrective lens for near vision.			
Previous Accidents		Unknown			

Total Hours	3416.4
Total Past 90 Days	19.5
Total on Type Past 90 Days	5.5
Total on Type	272.3

1.6 Aircraft Information

GENERAL INFORMATION

The aircraft is a four-place, high-wing, and single-engine aircraft, equipped with the conventional landing gear. This aircraft is certificated in the normal category. The aircraft is approved for day and night VFR/IFR operations when properly equipped and certificated.

A horizontally opposed, four-cylinder, direct drive, normally aspirated, air-cooled, carburettor equipped engine, powers the aircraft. The engine is a Lycoming Model O-360-C1F and is rated at 180 horsepower.

Airframe:

Type	Maule M6-6-235
Serial No.	7410C
Manufacture	JABIRU
Year of Manufacture	1981
Last MPI (Date & Hours)	06/08/2020
Hours since Last MPI	16.6 hours
*Special Certificate of Airworthiness 1	28/10/2020 valid till 11/12/2020
Operating Categories	Category F (private use only)

Engine:

Type	Aero engines
Serial No.	L-23470-40A
Hours since New	1136.80
Engine Time since overhaul (TSO)	806.5 at last MPI

1.7 Meteorological Information

Wind direction	90°	**Wind speed**	10-15 kts	**Visibility**	Cavok
Temperature	29° C	**Cloud cover**	clear	**Cloud base**	Cavok
QNH	1012				

1.8 Aids to Navigation

1.8.1 The aircraft was equipped with standard navigation and communication as approved by the regulator for the aircraft type. There were no records indicating that the navigational system was unserviceable prior to or during the flight.

1.9 Communications.

1.9.1 The aircraft was equipped with a Bendix/king kx170B two-way communication radio, which was serviceable during the time of the occurrence. The communication between the flight crew and ATC was clearly readable

1.10 Aerodrome Information

1.10 Name of aerodrome : Eros Airport
Location indicator : FYWE
Aerodrome Co-ordinates : S 22° 29’9 & E 017° 27’46
Aerodrome Elevation : 5,575 feet (1,699 m)
Runway Dimensions : 1983 by 30 meters
Runway Surface : Asphalt

1.11 Flight Recorders

1.11.1 The Aircraft was not equipped with a flight data recorder (FDR) or a cockpit voice recorder (CVR) nor was it required by the relevant aviation regulations.

1.12 Wreckage distribution and Impact Information

1.12.1 The aircraft was intact upon impact.

1.13 Medical and Pathological Information

1.13.1. No medical or pathological investigations were conducted, nor were they required.

*1 *The Special Certificate of Airworthiness issued, allows the aircraft to be operated under retricted conditions within the provision of NAM-CATs GMR 43.02.6.. where a private operated aircraft has reached calendar period for TBO but its hours are few.*

1.14 Fire

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

1.15 Survival Aspects.

1.15.1 The impact forces involved during the accident were minimal and not beyond human body tolerance
1.15.2 There was no compression of the cabin and therefore this was a survivable accident.
1.15.3 The pilot was properly restrained with a safety harness and was effective.

1.16 Tests and Research.

1.16.1. None was conducted, nor was it required.

1.17 Organizational and Management Information.

1.17.1. The regulator

During the last MPI which was signed on 06/08/2020, the Lycoming engine serial number L-23470-40A had accumulated 806.5 hours Engine Time Since Overhaul (TSO) however the time required for overhaul of this engine is usually 1700 hours.

However, a provision to operate at category F (non -commercial operations), can be issued to allow the aircraft to be operated without overhaul under special conditions. An AMO and certifying engineer under the regulator's conditioning monitoring have the flexibility to extend the TBO so long as these provisions are maintained.

(**NAM-CATS GMR** part 43.02.6(1.11)(4) which states that *(4) 'The engine overhauls specified in Appendix 1 of this schedule are mandatory for all aircraft not classified exclusively under Category (f) (Private Category), and must be executed in accordance with the manufacturer's current manuals and recommendations, not later than the times shown.'*

The AMO was required to provide oil samples with every 25 hours or every three months whichever came first and submitted along with engine conditions parameters to the NCAA for evaluation

1.18 Additional Information
1.18 .1 None

1.19 Useful or Effective Investigation Techniques.
1.19.1 Not applicable.

2. ANALYSIS

2. 1. Man

The pilot was issued with a Commercial Pilot Licence (Aeroplane) on 09 November 2016 and was valid indefinitely provided the holder holds a valid medical certificate and maintains proficiency as per regulations.

He was in possession of a valid aviation medical certificate. He was well-rested and was familiar with the aircraft and the aerodrome. Records indicate he flew 5.5hrs in the last 90 days. The few hours flown within the 90 days period could exacerbate the pilot's ability to handle the aircraft during gusting crosswinds.

2.2 Machine (Aircraft)

The aircraft Certificate of Registration was issued on 24th November 2011. The special flight permit number SC/CTBO/03/10/20202 was issued on 28/10/2021 which certified that the aircraft is authorized for private flights under limited operations. , it was valid for 50 hours or six months.

On-site investigation and further post-accident inspection of the wreckage (airframe and engine) revealed no pre-existing failures prior to the accident; all damage was caused during the accident. Records indicated that the aircraft was airworthy at the time.

There were no recorded defects before the flight. The aircraft was equipped with standard navigation and communication as approved by the regulator for the Aircraft type.

The aircraft had been issued with a Special Certificate of Airworthiness, this certificate was issued due to the fact that the engine had reached its calendar overhaul period however as it was permitted to continue flying by the regulator under category F which is issued pursuant to NAMCARs 21.08.5 under restrictive conditions prescribed in NAMCATs GMR part 43.02.6 (1.11)(4).

There was no difficulties with Ground-based navigation aids; aerodrome visual ground aids and their serviceability were not a factor in this occurrence.

The aircraft was equipped with a Bendix/king kx170B two-way communication radio, which was serviceable during the time of the occurrence. The communication between the flight crew and ATC was clearly readable.

Interview with several experienced pilots on the tail dragger aircraft highlighted on the 'special skills required' to maneuver this type of aircraft under crosswind conditions. Which was not the case with other tricycle type aircraft.

2. 3. Environment

The wind was gusting at 10-15 knots in an easterly direction of 090 degrees. The temperature was fine at 30 degrees.
The aircraft encountered wind from the east pushing the vertical stabilizer (tail) of the aircraft to the left, which forced the nose of the aircraft to the right. Subsequently, the aircraft went off the runway, to the right the pilot then overcorrected and consequently went off to the left of the runway.

The aircraft was operated and landed on a licensed aerodrome which had serviceable navigations aids.

3. CONCLUSION

3.1 Findings

3.1.1 The maintenance records indicated that the aircraft was certified, equipped and maintained in accordance with existing regulations and approved procedures.

3.1.2 The aircraft had a valid Special Certificate of Airworthiness issued that morning and had met the conditions required.

3.1.3 There was no evidence of airframe failure or system malfunction prior to the accident.

3.1.4 The pilot had a valid Commercial Pilot Licence and medical certificate.

3.1.5 The aircraft was equipped with standard communication equipment as approved by the Regulator, it was found serviceable.

3.1.6 When the aircraft was landing there was a crosswind from the right, 090º, at 10-15 knots.

3.1.7 The runway in use was RWY 01 and all the runway markings and equipment including ATC communication were clear and readable to the pilot.

3.2. Cause/s

3.2.1. Loss of Control . (LOC-G)

3.3 Contributing factor

3.3.1 Gusting crosswind.

4.0 Safety Recommendations

4.1 None

Date: 19/AUG/2022

Hafeni Mweshixwa
Investigator-in-Charge

Released by:

Date: 22/8/2022

Hon John Mutorwa, MP
MINISTER: MINISTRY OF WORKS AND TRANSPORT

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