

COMANDO DA AERONÁUTICA
CENTRO DE INVESTIGAÇÃO E PREVENÇÃO DE
ACIDENTES AERONÁUTICOS



FINAL REPORT
A - 020/CENIPA/2021

OCCURRENCE:	ACCIDENT
AIRCRAFT:	PS-EBI
MODEL:	DA 62
DATE:	04FEB2021



NOTICE

According to the Law n  7565, dated 19 December 1986, the Aeronautical Accident Investigation and Prevention System – SIPAER – is responsible for the planning, guidance, coordination and execution of the activities of investigation and prevention of aeronautical accidents.

The elaboration of this Final Report was conducted taking into account the contributing factors and hypotheses raised. The report is, therefore, a technical document which reflects the result obtained by SIPAER regarding the circumstances that contributed or may have contributed to triggering this occurrence.

The document does not focus on quantifying the degree of contribution of the different factors, including the individual, psychosocial or organizational variables that conditioned the human performance and interacted to create a scenario favorable to the accident.

The exclusive objective of this work is to recommend the study and the adoption of provisions of preventative nature, and the decision as to whether they should be applied belongs to the President, Director, Chief or the one corresponding to the highest level in the hierarchy of the organization to which they are being forwarded.

This Report does not resort to any proof production procedure for the determination of civil or criminal liability, and is in accordance with Appendix 2, Annex 13 to the 1944 Chicago Convention, which was incorporated in the Brazilian legal system by virtue of the Decree n  21713, dated 27 August 1946.

Thus, it is worth highlighting the importance of protecting the persons who provide information regarding an aeronautical accident. The utilization of this report for punitive purposes maculates the principle of “non-self-incrimination” derived from the “right to remain silent” sheltered by the Federal Constitution.

Consequently, the use of this report for any purpose other than that of preventing future accidents, may induce to erroneous interpretations and conclusions.

N.B.: This English version of the report has been written and published by the CENIPA with the intention of making it easier to be read by English speaking people. Taking into account the nuances of a foreign language, no matter how accurate this translation may be, readers are advised that the original Portuguese version is the work of reference.

SYNOPSIS

This is the Final Report of the 04FEB2021 accident with the DA 62 aircraft model, registration PS-EBI. The accident was classified as “[LOC-G] Loss of Control on the Ground and [RE] Runway Excursion”.

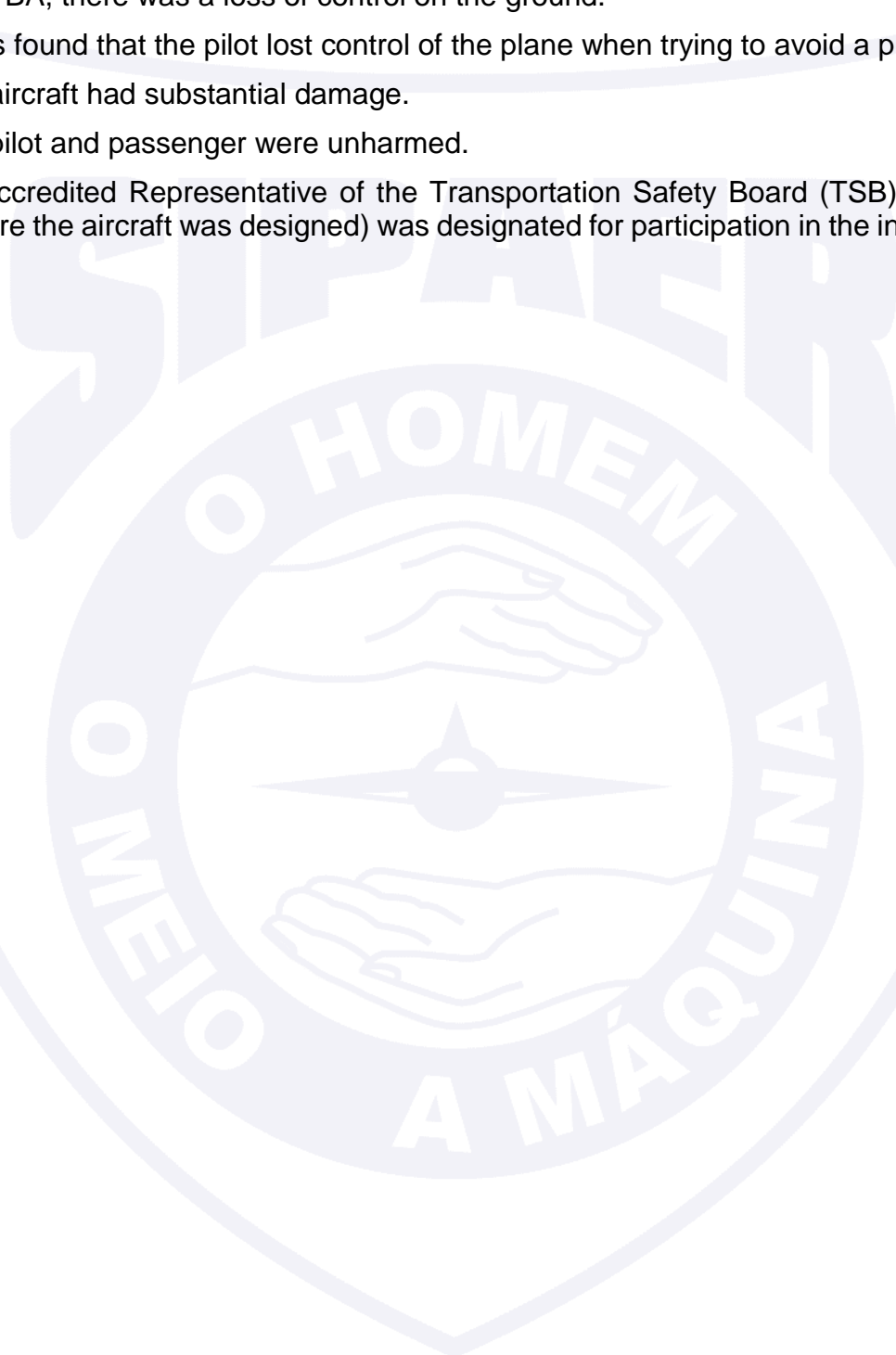
During the run after landing, in the landing area for agricultural use on Chapadão Farm, Barreiras - BA, there was a loss of control on the ground.

It was found that the pilot lost control of the plane when trying to avoid a puddle.

The aircraft had substantial damage.

The pilot and passenger were unharmed.

An Accredited Representative of the Transportation Safety Board (TSB) – Canada, (State where the aircraft was designed) was designated for participation in the investigation.



CONTENTS

GLOSSARY OF TECHNICAL TERMS AND ABBREVIATIONS	5
1. FACTUAL INFORMATION.....	6
1.1 History of the flight.....	6
1.2 Injuries to persons.....	6
1.3 Damage to the aircraft.....	7
1.4 Other damage.....	7
1.5 Personnel information.....	7
1.5.1 Crew's flight experience.....	7
1.5.2 Personnel training.....	8
1.5.3 Category of licenses and validity of certificates.....	8
1.5.4 Qualification and flight experience.....	8
1.5.5 Validity of medical certificate.....	8
1.6 Aircraft information.....	8
1.7 Meteorological information.....	8
1.8 Aids to navigation.....	8
1.9 Communications.....	8
1.10 Aerodrome information.....	8
1.11 Flight recorders.....	9
1.12 Wreckage and impact information.....	9
1.13 Medical and pathological information.....	9
1.13.1 Medical aspects.....	9
1.13.2 Ergonomic information.....	9
1.13.3 Psychological aspects.....	9
1.14 Fire.....	9
1.15 Survival aspects.....	9
1.16 Tests and research.....	9
1.17 Organizational and management information.....	9
1.18 Operational information.....	9
1.19 Additional information.....	10
1.20 Useful or effective investigation techniques.....	10
2. ANALYSIS.....	11
3. CONCLUSIONS.....	11
3.1 Facts.....	11
3.2 Contributing factors.....	12
4. SAFETY RECOMMENDATION.....	12
5. CORRECTIVE OR PREVENTATIVE ACTION ALREADY TAKEN.....	12

GLOSSARY OF TECHNICAL TERMS AND ABBREVIATIONS

ANAC	Brazil's National Civil Aviation Agency
ATC	Air Traffic Control
CA	Airworthiness Certificate
CENIPA	Aeronautical Accident Investigation and Prevention Center
CIV	Pilot's Flight Logbook
CMA	Aeronautical Medical Certificate
ELT	Emergency Locator Transmitter
IFRA	Instrument Flight Rating - Airplane
MLTE	Airplane Multi Engine Land Rating
PIC	Pilot in Command
PLA	Airline Pilot License - Airplane
PPR	Private Pilot License – Airplane
RBAC	Brazilian Civil Aviation Regulation
SACI	Integrated Civil Aviation Information System
SALVAERO	Search and Rescue Coordination Center
SIPAER	Aeronautical Accident Investigation and Prevention System
SITH	ICAO Location Designator – Fazenda Vitória Aerodrome, Luís Eduardo Magalhães - BA
TPP	Registration Category of Private Service
TSB	Transportation Safety Board
UTC	Universal Time Coordinated
VFR	Visual Flight Rules
VTI	Initial Technical Inspection

1. FACTUAL INFORMATION.

Aircraft	Model: DA 62 Registration: PS-EBI Manufacturer: Diamond Aircraft	Operator: Siegfried EPP
Occurrence	Date/time: 04FEB2021 - 1320 UTC Location: Chapadão Farm Lat. 11°58'44"S Long. 046°12'52"W Municipality – State: Barreiras – BA	Type(s): “[LOC-G] Loss of Control on the Ground and [RE] Runway Excursion” Subtype(s): Nil

1.1 History of the flight.

The aircraft took off from the Fazenda Vitória Aerodrome (SITH), Luís Eduardo Magalhães - BA, to the landing area for agricultural use on Chapadão Farm, Barreiras - BA, at about 1305 (UTC), in order to transport personnel, with a pilot and a passenger on board.

According to the pilot's report, during the run after landing, the left wing collided with the cornfield on the side of the runway while trying to avoid a puddle of water. At that moment, there was a loss of control of the plane.

The aircraft yawed approximately 90° to the left and stopped with the front part in the cornfield.

The plane had substantial damage.



Figure 1 - Image of the aircraft after a complete stop.

The pilot and passenger left unharmed.

1.2 Injuries to persons.

Injuries	Crew	Passengers	Others
Fatal	-	-	-
Serious	-	-	-
Minor	-	-	-
None	1	1	-

1.3 Damage to the aircraft.

The aircraft had damage to the nose section, auxiliary landing gear, engine and right propeller assembly (Figures 2 and 3).



Figure 2 - Damage to the nose section and auxiliary landing gear.



Figure 3 - Damage to the right engine propeller assembly.

1.4 Other damage.

None.

1.5 Personnel information.

1.5.1 Crew's flight experience.

Flight Hours	PIC
Total	1.800:00
Total in the last 30 days	21:00
Total in the last 24 hours	00:00
In this type of aircraft	100:00
In this type in the last 30 days	07:00
In this type in the last 24 hours	00:00

N.B.: The data relating to the flown hours were obtained with the pilot.

1.5.2 Personnel training.

The PIC took the PPR course at *Escola de Aviação Civil PLA*, Anápolis - GO, in 2015.

1.5.3 Category of licenses and validity of certificates.

The PIC had the PLA License and had valid MLTE and IFRA Ratings.

1.5.4 Qualification and flight experience.

The pilot's electronic CIV records, available in the ANAC's SACI, indicated that, although infrequently, he had operated the PS-EBI aircraft since April 2020.

According to his report, he flew, among others, the following models of multi-engine aircraft: EMB-810 (Seneca), B58 (Beechcraft Baron), B-90 (Beechcraft King Air), and B-200 (Beechcraft King Air).

The pilot was qualified and had the experience to perform the flight.

1.5.5 Validity of medical certificate.

The PIC had a valid CMA.

1.6 Aircraft information.

The aircraft, serial number 62.089, was manufactured by Diamond Aircraft - Austria in 2018 and was enrolled in the TPP Category.

The aircraft CA was valid.

The airframe, engines, and propellers logbook records were updated.

The last inspection of the aircraft, the "200 hours" type, was carried out on 30SET2020, by the Quick Manutenção de Aeronaves Ltd., in Goiânia - GO, with 46 hours and 40 minutes flown after the inspection.

It carried out a VTI, on 19MAR2020, for nationalization purposes, with 80 hours and 30 minutes flown after the inspection.

The plane was equipped with two Austro Engine AE 330 internal combustion engines, manufactured by Diamond/Mercedes Benz, and could be fueled with Diesel (S-10) through a software change made by the Austrian factory.

1.7 Meteorological information.

According to the pilot's report, at the time of the accident, the weather was good, without cloudiness, with visibility above 10 km and calm wind, with a direction of 20°.

It had rained the day before and the runway was slippery.

Nevertheless, conditions were favorable for the visual flight.

1.8 Aids to navigation.

Nil.

1.9 Communications.

Nil.

1.10 Aerodrome information.

The landing site was not a registered Aerodrome.

The landing area for agricultural use at Fazenda Vitória had a dirt runway with 02/20 thresholds, dimensions of 900 x 20 m, with an elevation of 2,770 ft. There were no obstacles at the thresholds. However, on its sides, there was a cornfield whose plants were taller than the wingtips of the plane.

1.11 Flight recorders.

Neither required nor installed.

1.12 Wreckage and impact information.

During the run after landing, the aircraft's left wing touched the cornfield on the side of the runway. This contact caused yaw to the left and the subsequent loss of control of the plane, which stopped with the front part in the cornfield (Figure 4).

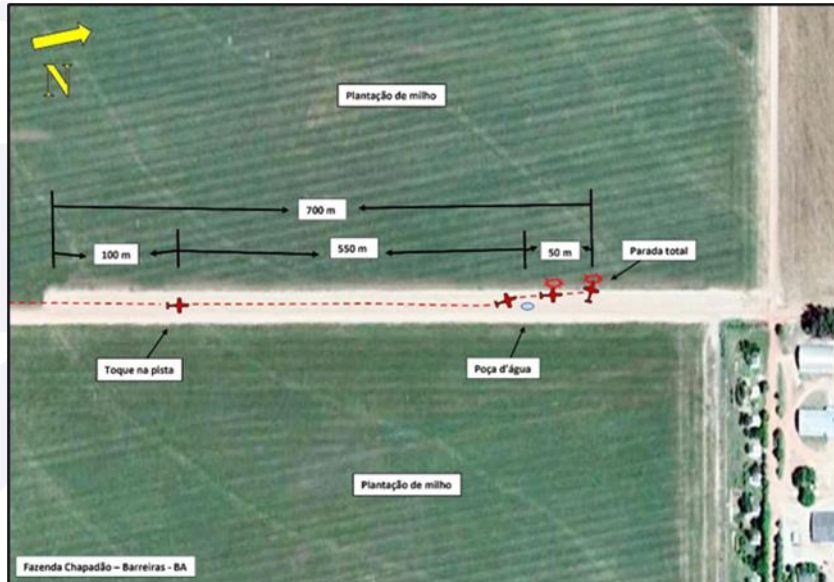


Figure 4 - Sketch of the accident.

1.13 Medical and pathological information.

1.13.1 Medical aspects.

No evidence was found that problems of physiological nature could have affected the flight crew performance.

1.13.2 Ergonomic information.

Nil.

1.13.3 Psychological aspects.

No evidence was found that problems of physiological nature or incapacitation could have affected the flight crew performance.

1.14 Fire.

There was no fire.

1.15 Survival aspects.

Nil.

1.16 Tests and research.

Nil.

1.17 Organizational and management information.

Nil.

1.18 Operational information.

The aircraft performed a private flight, operating according to the requirements established in the RBAC No. 91, Amendment 01, which dealt with the General Operating Requirements for Civil Aircraft.

The aircraft was within the weight and balance limits specified by the manufacturer.

The plane took off with 4 hours of autonomy, under VFR, for a stage that lasted approximately 15 minutes. A flight plan was not presented, and no communication with the ATC agencies was established during the flight.

According to the reports collected, no abnormality related to the aircraft or its systems was noticed during the flight and approach.

The pilot reported that he had already operated at that location.

According to the PIC report, the approach was performed for landing at threshold 02, with flaps positioned at 40 degrees (maximum deflection). The touchdown occurred in the first 100 m of the runway, and he let the aircraft decelerate during the run after landing.

According to the pilot, after covering about 550 m, with approximately 40 kt of speed, he made a detour to the left to avoid the aircraft passing over a puddle of water. At that moment, the left wing touched the vegetation, and the plane lost control.

According to information provided by the SALVAERO - Recife, the aircraft's ELT was activated.

1.19 Additional information.

The Chapadão Farm, where the landing took place, also belonged to the aircraft owner.

The RBAC 91, Amendment 01, provided, in its section 91.102 General Rules, letter (d), the following requirement:

91.102 General Rules

[...]

(d) It is only permitted to use a Brazilian Aerodrome if it is registered and the operator determines that this Aerodrome is suitable for the type of aircraft involved and for the proposed operation.

In turn, the RBAC No. 137, Amendment 04, which dealt with the Certification and Operational Requirements: Aero agricultural Operations, established in section 137.301 Landing area for Aero agricultural use of Subpart D Landing Area for Aero agricultural Use and Aero agricultural Operations at Aerodromes, the following requirements:

137,301 Landing area for agricultural use

[...]

(d) The landing area for agricultural use does not need to be registered at the ANAC.

[...]

(e) No person may operate an aircraft in a landing area for agricultural use unless:

(1) the operation is exclusive to aero-agricultural activities for a previously defined period;

(2) the owner of the area has agreed to its construction and use;

(3) the agricultural aircraft does not carry passengers.

1.20 Useful or effective investigation techniques.

Nil.

2. ANALYSIS.

It was a private flight being operated according to the requirements established in the RBAC 91. However, the landing in which the loss of control occurred and also the runway excursion, was being carried out in a landing area for agricultural use and not on a registered runway.

From the reports that no abnormality related to the aircraft was noticed during its operation, it was concluded that there was no contribution of any failure or malfunction of the aircraft's systems to the occurrence.

The pilot reported that, at the time of the accident, the weather was good and the conditions were favorable for visual flight. The fact that it had rained the day before, and the slippery condition of the runway, where there were still puddles of water, led the investigators to conclude that the risks associated with the operation conducted under such conditions were not adequately evaluated, with the non-compliance of the requirements established in the RBACs 91 and 137, which contributed to this accident.

Considering the conditions prevailing at the time of landing (soft wet terrain, slippery and with accumulations of water), it is possible that, during the informed deviation attempt, an inadequacy in the use of the controls resulted in the contact of the left wing tip with the vegetation on the side of the runway, which caused an abrupt turn to the left, which could not be corrected.

In this context, there was an inadequacy in the preparation work carried out for part of the flight, particularly regarding the assessment of the implications of the rains that occurred the day before, for the deterioration of the operational conditions of the landing area for agricultural use, due to its physical characteristics especially because its surface is made of dirt, a circumstance that contributed to the loss of control during the landing.

The operation in disagreement with the aeronautical legislation in force may imply safety levels below the acceptable minimum established by the Brazilian State.

By failing to meet the minimum safety levels defined by the Brazilian State, guaranteed through compliance with the RBHA or the RBAC, can create latent unsafe conditions, which must be eliminated or mitigated through compliance with the regulation itself.

3. CONCLUSIONS.

3.1 Facts.

- a) the pilot had a valid CMA;
- b) the pilot had valid MLTE and IFRA Ratings;
- c) the Pilot in Command was qualified and had experience to perform the flight;
- d) the aircraft had a valid CA;
- e) the aircraft was within the weight and balance limits;
- f) the airframe, engines and propellers logbooks records were updated;
- g) the pilot informed that the meteorological conditions were favorable for the flight;
- h) it had rained the day before and the runway was slippery;
- i) the pilot reported that no abnormality related to the aircraft or its systems was noticed during the flight and approach;
- j) the landing was being carried out in the landing area for agricultural use on Chapadão Farm, Barreiras - BA;

- k) the pilot declared that, during the run after the landing, when trying to avoid a puddle of water, the left wing collided with the corn plantation on the side of the runway and, at that moment, there was a loss of control of the plane;
- l) the aircraft yawed approximately, 90° to the left and stopped with the front part in the cornfield;
- m) the execution of the landing in a landing area for agricultural use in a private passenger transport operation characterized the non-compliance with the requirements established in the RBACs 91 and 137;
- n) the aircraft had substantial damage; and
- o) the pilot and passenger left unharmed.

3.2 Contributing factors.

- Control skills – undetermined.

It is possible that, during the reported deviation attempt, an inadequacy in the use of the controls resulted in the contact of the left-wing tip with the existing vegetation on the side of the runway, which caused an abrupt left turn, whose correction could not be performed because of the conditions prevailing at the time of landing (soft, wet, slippery terrain with accumulations of water).

- Piloting judgment – a contributor.

The fact that it had rained the day before and the slippery condition of the runway, in which there were still puddles of water, as well as the non-compliance with the requirements established in the RBACs 91 and 137, led the investigators to conclude that the inadequate assessment of the risks associated with the operation conducted under such conditions contributed to this accident.

In addition, the requirements established in the RBACs 91 and 137 which prevented the operation in that location, were not considered.

4. SAFETY RECOMMENDATION.

A proposal of an accident investigation authority based on information derived from an investigation, made with the intention of preventing accidents or incidents and which in no case has the purpose of creating a presumption of blame or liability for an accident or incident. In addition to safety recommendations arising from accident and incident investigations, safety recommendations may result from diverse sources, including safety studies.

In consonance with the Law n°7565/1986, recommendations are made solely for the benefit of the air activity operational safety, and shall be treated as established in the NSCA 3-13 “Protocols for the Investigation of Civil Aviation Aeronautical Occurrences conducted by the Brazilian State”.

Nil.

5. CORRECTIVE OR PREVENTATIVE ACTION ALREADY TAKEN.

None.

On September 21th, 2022.