

**COMANDO DA AERONÁUTICA**  
**CENTRO DE INVESTIGAÇÃO E PREVENÇÃO DE**  
**ACIDENTES AERONÁUTICOS**



**FINAL REPORT**  
**A-084/CENIPA/2022**

<b>OCCURRENCE:</b>	<b>ACCIDENT</b>
<b>AIRCRAFT:</b>	<b>PR-EGD</b>
<b>MODEL:</b>	<b>R44 II</b>
<b>DATE:</b>	<b>19JUL2022</b>



## **NOTICE**

*According to the Law no 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 considering 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 distinct 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 Final Report has been made available to the ANAC and the DECEA so that the technical-scientific analyses of this investigation can be used as a source of data and information, aiming at identifying hazards and assessing risks, as set forth in the Brazilian Program for Civil Aviation Operational Safety (PSO-BR).*

*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o 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. Considering 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 19 July 2022 accident with the R44 II aircraft, registration marks PR-EGD. The accident received the typification of “[UNK]] Undetermined”.

Witnesses on the ground saw the aircraft descending. The helicopter collided with the terrain, and was consumed by the post-impact fire.

The aircraft was destroyed.

The pilot suffered fatal injuries.

There was designation of an Accredited Representative of the National Transportation Safety Board (NTSB) for participation in the investigation since the United States of America was the State of design and manufacture of the aircraft.



## TABLE OF CONTENTS

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

## GLOSSARY OF TECHNICAL TERMS AND ABBREVIATIONS

ANAC	Brazil's National Civil Aviation Agency
CA	Certificate of Airworthiness
CENIPA	Brazil's Aeronautical Accidents Investigation and Prevention Center
CIV	Pilot Logbook
CMA	Aeronautical Medical Certificate
CVA	Airworthiness Verification Certificate
HMNT	Single-Engine Turbine Helicopter
IML	Institute of Forensic Medicine
NM	Nautical Miles
NTSB	National Transportation Safety Board (USA)
PIC	Pilot in Command
PCH	Commercial Pilot License (Helicopter)
RAB	Brazilian Aeronautical Registry
RBAC	Brazilian Civil Aviation Regulation
RBHA	Brazilian Aeronautical Certification Regulation
SACI	Integrated Civil Aviation Information System
SAE	Private-Aircraft Registration Category for Specialized Public Air Services
SERIPA V	5 <sup>th</sup> Regional Service for the Investigation and Prevention of Aeronautical Accidents
SIPAER	Aeronautical Accidents Investigation and Prevention System
TPX	Private-Aircraft Registration Category for Non-Regular Public Air Transport Services (Air Taxi)
UTC	Universal Time Coordinated



## 1. FACTUAL INFORMATION.

Aircraft	<b>Model:</b> R44 II	<b>Operator:</b> Private.
	<b>Registration:</b> PR-EGD	
	<b>Manufacturer:</b> Robinson Helicopter	
Occurrence	<b>Date/time:</b> 19JUL2022 - 1700 (UTC)	<b>Type(s):</b> [UNK] Unknown or undetermined
	<b>Location:</b> <i>Fazenda São Paulo.</i>	
	<b>Lat.</b> 22°57'33"S <b>Long.</b> 052°57'55"W	
	<b>Municipality – State:</b> <i>Loanda – Paraná.</i>	

### 1.1. History of the flight.

Around 17:00 UTC, eyewitnesses on the ground saw the aircraft descending. Subsequently, there was a collision with the ground, and a post-impact fire consumed the helicopter.



Figure 1 - View of the PR-EGD being consumed by fire shortly after the accident.

The aircraft was destroyed.

The pilot suffered fatal injuries.

### 1.2. Injuries to persons.

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

### 1.3. Damage to the aircraft.

The aircraft was destroyed.

### 1.4. Other damage.

NIL.

## 1.5. Personnel information.

### 1.5.1. Crew's flight experience.

	PIC
Total	132:48
Total in the last 30 days	Unknown.
Total in the last 24 hours	Unknown.
In this type of aircraft	Unknown.
In this type in the last 30 days	Unknown.
In this type in the last 24 hours	Unknown.

**N.B.:** Data concerning the flight hours was obtained from the pilot's Digital Logbook (CIV) of the Integrated Civil Aviation Information System (SACI) of the National Civil Aviation Agency (ANAC).

### 1.5.2. Personnel training.

Unknown.

### 1.5.3. Category of licenses and validity of certificates.

The PIC (Pilot in Command) had a PCH license (Commercial Pilot – Helicopter), and a valid HMNT rating (Single-Engine Turbine Helicopter).

### 1.5.4. Qualification and flight experience.

The data obtained from the pilot's digital CIV of the ANAC's SACI system on the date of the accident, showed that he had a total of 132 hours and 48 minutes of flight time, with the last flight logged in the system on 11 April 2021.

### 1.5.5. Validity of medical certificate.

The PIC held a valid Aeronautical Medical Certificate (CMA).

## 1.6. Aircraft information.

The S/N 11944 aircraft was a product manufactured by Robinson Helicopter in 2007, and registered in the Category of Multiple Registration Category - Private Non-Regular Public Air Transport Service - Air Taxi and Specialized Air Services (TPX/SAE). Nonetheless, it had been sold to a natural person, and was in the process of transference and change of its Registration Category before the Brazilian Aeronautical Registry (RAB).

The Investigation Commission did not have access to either the airframe or the engine logbook.

The aircraft's Certificate of Airworthiness (CA) had expired on 24 August 2020.

In this respect, the section 91.7 (Airworthiness of Civil Aircraft) of the RBAC - 91 established that:

[...]

(a) one is only allowed to operate a civil aircraft if it is in an airworthy condition.

[...]

Likewise, the section 91.403 (General Provisions) specified that:

(a) The operator or, if there is not an operator, the owner of an aircraft is responsible for maintaining that aircraft in an airworthy condition, including compliance with the RBAC-39.

[...]

(f) one is only allowed to operate an aircraft in accordance with this Regulation if the operator has presented a CVA to the ANAC with in the form established by the regulation in force for the referred aircraft in the last 12 months

[...]

### **1.7. Meteorological information.**

The weather conditions were consistent with VFR flights.

### **1.8. Aids to navigation.**

NIL.

### **1.9. Communications.**

NIL.

### **1.10. Aerodrome information.**

The occurrence was outside of aerodrome area.

### **1.11. Flight recorders.**

Neither required nor installed.

### **1.12. Wreckage and impact information.**

The impact occurred at a distance of about 1 NM from the location where a few eye-witnesses were on the ground. They were farm-workers carrying out their routine tasks.

According to them, the aircraft had already flown over the region a few times in previous days, always at low altitude, and probably along the same route.

On the day of the accident, they saw the helicopter flying over the farm at low altitude and on a nose-down attitude. They stated that the aircraft seemed to be losing height as it moved, and that they did not see any signs of fire or explosion during the time they maintained visual contact with the aircraft. They only heard a loud crashing noise and spotted dark smoke in the sky.

During the initial action, there was no evidence of prior impact. The distribution of the wreckage was of the concentrated type.

### **1.13. Medical and pathological information.**

#### **1.13.1. Medical aspects.**

NIL.

#### **1.13.2. Ergonomic information.**

NIL.

#### **1.13.3. Psychological aspects.**

NIL.

### **1.14. Fire.**

The fire probably started immediately after the impact. The combustion material was the fuel of the aircraft.

The degree of destruction and charring of the aircraft prevented the verification of components, equipment, instruments, and fuel of the helicopter.

### **1.15. Survival aspects.**

The sole occupant of the aircraft perished in the crash.

### **1.16. Tests and research.**



NIL.

### 1.17. Organizational and management information.

NIL.

### 1.18. Operational information.

It was not possible to verify whether the aircraft was within the weight and balance limits specified by the manufacturer, since the investigation team did not have access to the aircraft's manuals and documents.

The investigation team also did not have access to flight data, planning, route, nature of the flight, among other pieces of information.

The Figure 2 shows the probable direction of movement of the PR-EGD toward the accident site.



Figure 2 - Probable direction of travel of the PR-EGD.

### 1.19. Additional Information.

On the date of the accident, the Brazilian Aeronautical Registry (RAB) still had the name of an aviation company as the owner of the aircraft in question. However, the Full-Text Certificate of the aircraft showed that the transference of ownership had been accomplished on 01 June 2022 between the referred company and the new PR-EGD owner (a natural person), as per the aircraft purchase-and-sale receipt (SEI 7263968) dated 31 May 2022, and perfected on 01 June 2022. Under the terms of the legal instrument, the selling company gave full, general, unrestricted, and irrevocable discharge of the aircraft.

The amendment to the private instrument for the aircraft purchase and sale and other agreements had in its Clause 1 (On the Object) that:

First Paragraph: The referred aircraft, registration PR-EGD, has the following discrepancies.

1. CVA Expired since 24/August/2020
2. Expired components without traceability
3. Without MR Blades.

The BUYER undertakes to carry out the maintenance/exchange of the items listed above in accordance with a mutual agreement between BOTH PARTIES.

The current owner did not provide any information or document of the aircraft to the Investigation Commission, making it impossible to analyze the technical conditions of the aircraft in detail.

## 1.20 Useful or effective investigation techniques.

NIL.

## 2. ANALYSIS.

It was not possible to identify the nature of the flight of the R44-II helicopter (registration marks PR-EGD), as well as to obtain information on the route, planning and purpose of the flight.

Eyewitnesses on the ground reported having seen the aircraft fly over the region in previous days. They also reported that, on the day of the occurrence, they had seen the aircraft fly over the farm at low altitude on a nose-down attitude and, possibly, losing height.

According to some reports, there was no fire in flight. After the aircraft passed over the farm, a strong noise was heard, and dark smoke was spotted.

The PR-EGD aircraft lacked airworthiness conditions, since its Certificate of Airworthiness had expired on 24 August 2020. The degree of destruction and charring of the aircraft made it impossible to check the helicopter's components, equipment, instruments and fuel.

The lack of information about the flight, documentation and maintenance of the aircraft compromised the identification of the factors that contributed, directly or indirectly, to the occurrence.

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

The failure to meet the minimum levels of safety defined by the Brazilian State, guaranteed through compliance with either the Brazilian Aeronautical Certification Regulations (RBHA) or Brazilian Civil Aviation Regulations (RBAC), can create latent unsafe conditions, which will, in turn, be eliminated or mitigated by means of compliance with the very regulation.

## 3. CONCLUSIONS.

### 3.1. Findings.

- a) the pilot had a valid CMA (Aeronautical Medical Certificate);
- b) the pilot held a PCH License (Commercial Pilot – Helicopter) and a valid HMNT rating (Single-Engine Turbine Helicopter);
- c) the data obtained from the digital CIV of the ANAC SACI system on the date of the accident showed that the pilot had a total of 132 hours and 48 minutes of flight time;
- d) the aircraft had its CA (Certificate Airworthiness) expired since 24 August 2020;
- e) it was not possible to verify whether the aircraft was within the prescribed weight and balance limits;
- f) the Investigation Commission did not have access to the airframe and engine logbooks;
- g) the meteorological conditions were consistent with the type of flight;
- h) the degree of destruction and charring of the aircraft made it impossible to verify the helicopter's components, equipment, instruments, and fuel;
- i) it was not possible to identify the nature of the flight of the R44-II aircraft, registration marks PR-EGD, as well as information on the route, planning and purpose of the flight;

- j) the owner/operator listed in the Full Text Certificate of the PR-EGD aircraft reported having sold the helicopter to a natural person in June 2022, but informed not knowing the identity of the buyer;
- k) the aircraft was destroyed; and
- l) the pilot suffered fatal injuries.

### **3.2. Contributing factors.**

- Undetermined.

### **4. SAFETY RECOMMENDATIONS**

None.

### **5. CORRECTIVE OR PREVENTATIVE ACTION ALREADY TAKEN.**

None.

On November 1st, 2023.

