

COMANDO DA AERONÁUTICA
CENTRO DE INVESTIGAÇÃO E PREVENÇÃO DE
ACIDENTES AERONÁUTICOS



FINAL REPORT
A - 088/CENIPA/2018

OCCURRENCE:	ACCIDENT
AIRCRAFT:	PR-RCJ
MODEL:	210N
DATE:	16MAY2018



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

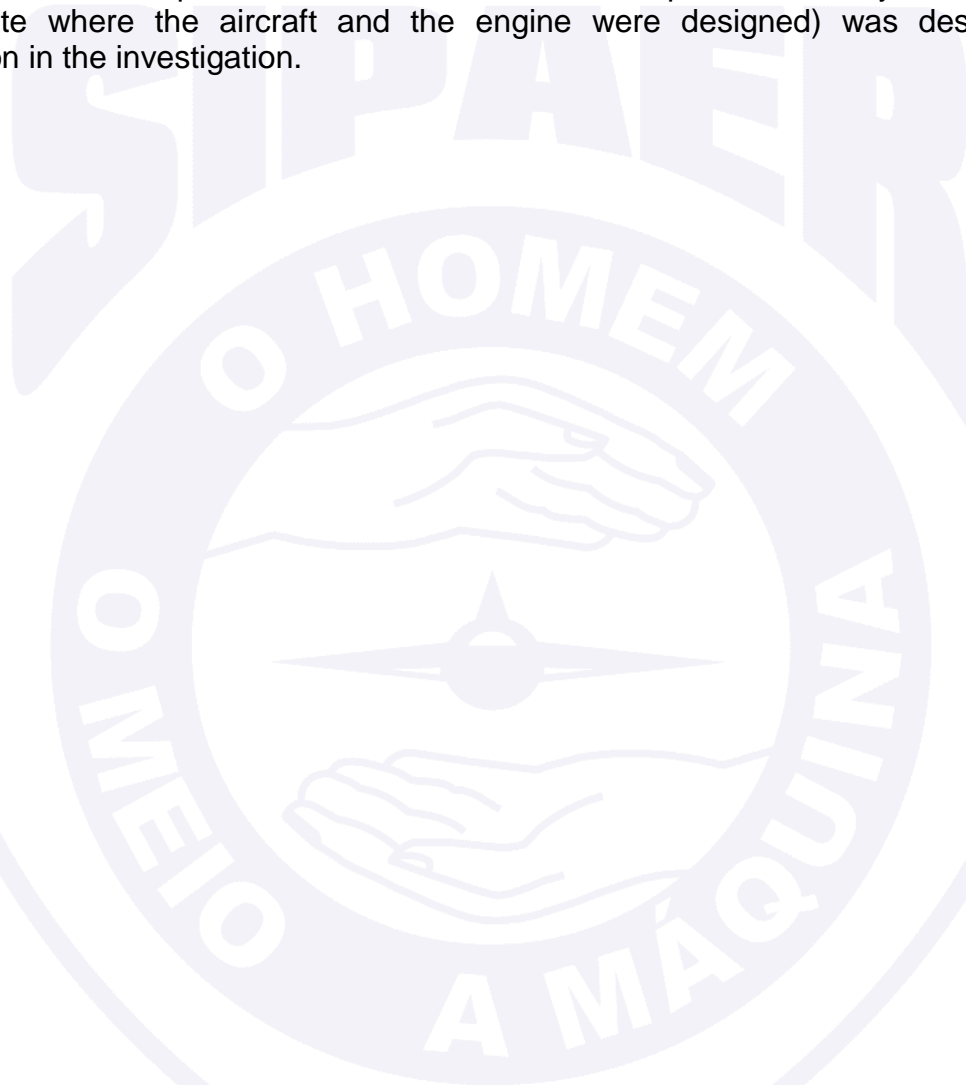
This is the Final Report of the 16MAY2018 accident with the 210N aircraft, registration PR-RCJ. The accident was classified as “[LOC-I] Loss of Control in Flight”.

The aircraft took off from the Itaituba Aerodrome (SBIH) - PA, at 1010 (UTC), to the Flores Aerodrome (SWFN), Manaus - AM, but did not reach the destination.

Local authorities in the city of Itacoatiara - AM, near the Arari River, found the aircraft. The aircraft was destroyed.

The pilot and passenger perished on the spot.

An Accredited Representative of the National Transportation Safety Board (NTSB) - USA, (State where the aircraft and the engine were designed) was designated for participation in the investigation.



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GLOSSARY OF TECHNICAL TERMS AND ABBREVIATIONS

ACC-AZ	Amazon Area Control Center
ANAC	Brazil's National Civil Aviation Agency
ATS	Air Traffic Services
CA	Airworthiness Certificate
CBA	Aeronautics Brazilian Code
CENIPA	Aeronautical Accident Investigation and Prevention Center
CINDACTA IV	Fourth Air Defense and Air Traffic Control Integrated Center
CM	Registration Certificate
CMA	Aeronautical Medical Certificate
CPTEC	Weather Forecast and Climate Studies Center
ELT	Emergency Locator Transmitter
FAA	Federal Aviation Administration
FIAM	Annual Maintenance Inspection Form
FIEV	Flight Instruments and Equipment Sheet
IAM	Annual Maintenance Inspection
ICA	Aeronautics Command Instruction
IFR	Instrument Flight Rules
IFRA	Instrument Flight Rating - Airplane
METAR	Meteorological Aerodrome Report
MNTE	Airplane Single Engine Land Rating
PCM	Commercial Pilot License – Airplane
PPR	Private Pilot License – Airplane
REDEMET	Aeronautics Command Meteorology Network
SACI	Integrated Civil Aviation Information System
SBIC	ICAO Location Designator - Itacoatiara Aerodrome - AM
SBIH	ICAO Location Designator - Itaituba Aerodrome - PA
SIGWX	Significant Weather Chart
SPECI	Selected Special Aeronautical Weather Report
SWFN	ICAO Location Designator - Flores Aerodrome, Manaus - AM
TPP	Registration Category of Private Service - Aircraft
UTC	Universal Time Coordinated

1. FACTUAL INFORMATION.

Aircraft	Model: 210N Registration: PR-RCJ Manufacturer: Cessna Aircraft	Operator: Private
Occurrence	Date/time: 16MAY2018 - 1115 UTC Location: Out of the Aerodrome Lat. 03°31'03"S Long. 058°23'28"W Municipality – State: Itacoatiara – AM	Type(s): [LOC-I] Loss of Control in Flight Subtype(s): NIL

1.1 History of the flight.

The aircraft took off from the Itaituba Aerodrome (SBIH) - PA, to the Flores Aerodrome (SWFN), Manaus - AM, at 1010 (UTC) to transport cargo and personnel, with a pilot and a passenger on board.

The aircraft did not arrive at the destination at the scheduled time.

The aircraft was found by Itacoatiara local authorities - AM, in a dense forest near the Arari River, 25 nautical miles away from Itacoatiara, on 17MAY2018.

The aircraft was destroyed. The crewmember and the passenger perished at the site.

1.2 Injuries to persons.

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

1.3 Damage to the aircraft.

The aircraft was destroyed.

1.4 Other damage.

None.

1.5 Personnel information.

1.5.1 Crew's flight experience.

Hours Flown	Pilot
Total	560:15
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.: The data related to the flown hours were obtained through the ANAC's registers.

1.5.2 Personnel training.

The pilot took the Private Pilot course - Airplane (PPR) at the Pará de Minas Aeroclub - MG, in 2010.

1.5.3 Category of licenses and validity of certificates.

The pilot had the PCM License and had valid MNTE Rating. His IFRA Rating was overdue since March 2018.

1.5.4 Qualification and flight experience.

The pilot's qualification and experience could not be verified.

The Investigation Team asked a family member for the pilot's flight logbook, but it was not found.

1.5.5 Validity of medical certificate.

The pilot had valid CMA.

1.6 Aircraft information.

The aircraft, serial number 21064645, was manufactured by Cessna Aircraft in 1982 and was registered in the TPP category.

The aircraft had valid Airworthiness Certificate (CA).

It was not possible to verify if the airframe, engine and propeller logbooks' records were updated since they were not presented to the Investigators.

The aircraft was certified to fly under Day Flight Instrument (IFR) rules.

The owner reported that maintenance companies had performed interventions on the aircraft.

After contacting the companies, Piquiatuba Air Taxi provided the documents related to the 2016 Annual Maintenance Inspection (IAM). The Centro-Oeste Manutenção de Aeronaves Ltd. (CMA) sent the documents related to the 2017 IAM.

Copies of some of the mandatory documents have also been sent: the Registration Certificate (CM), the CA, the Policy or Insurance Certificate with proof of payment, the Radio License and the Annual Maintenance Inspection Form (FIAM) that, at the time of the inspections, were filed in maintenance companies.

The last inspection of the aircraft, the "100 hours and IAM type", was carried out on 01SEPT2017 by the Centro-Oeste Manutenção de Aeronaves Ltd., in Anápolis - GO. There were flown 22 hours and 50 minutes until 04NOV2017, date of the last record in the Aircraft Flight Logbook.

Flown hours records after that date (04NOV2017) were not submitted to the Investigation Team. This gap made it impossible for the Investigation Team to verify whether the manufacturer's maintenance program was being followed in accordance with the manuals.

The aircraft did not have meteorological radar, as it could be verified in the Flight Instruments and Equipment Sheet (FIEV) issued by the CMA Company, dated 01SEPT2017.

1.7 Meteorological information.

The Selected Special Aeronautical Meteorological Report (SPECI) of Itaituba Aerodrome - PA (SBIH), at 1015 (UTC), starting time of the activities in that meteorological station, contained information of few clouds at 500ft, sparse clouds at 10.000ft and visibility above 10km.

SPECI SBIH 161015Z /////KT 9999 FEW005 SCT100 24/24 Q1012

The SPECI of the Itacoatiara Aerodrome (SBIC) - AM, 25 nautical miles away from the accident site, at 1215 (UTC), starting time of the activities at that Aerodrome weather station, contained the following information:

SPECI SBIC 161215Z 20002KT 9999 SCT014 BKN100 26/25 Q1014

It was found that the conditions, one hour after the occurrence, were favorable for the visual flight with visibility over 10km, scattered clouds at 1,400ft and cloudy at 10,000ft. The wind was calm.

According to the Aeronautics Command Instruction (ICA) 100-12 - Rules of the Air, 2016, the general criteria for accomplishment of a VFR flight were the following ones:

"5.1.2 Notwithstanding the established in 5.1.1 above, VFR flights shall only be performed when simultaneously and continuously can meet the following conditions:

- a) maintain reference to soil or water, so that meteorological formations below the flight level do not obstruct more than half the pilot's area of vision;
- b) fly below FL 150; and
- c) fly with the speed established in table 1.

5.1.3 Except as authorized by the ATC body to serve a special VFR flight, VFR flights may not land, take off, enter the ATZ or the traffic circuit of such Aerodrome if:

- (a) the ceiling is less than 450 m (1500 ft.); or
- (b) the visibility on the ground is less than 5 km."

The Significant Weather Chart (SIGWX), made at 2304 (UTC), valid until 1200 (UTC) on 16MAY2018, obtained by the REDEMET site, illustrated the presence of few clouds ToweringCumulus (TCU) at 2,500ft and top at FL200, cloudy sky and presence of clouds Autocumulus (AC) and Autostratus (AS) based on 10.000ft and top at 15.000ft and Cumulus (CU) and Stratocumulus (SC) clouds based on 2500ft and top at 7,000ft (Figure 1).

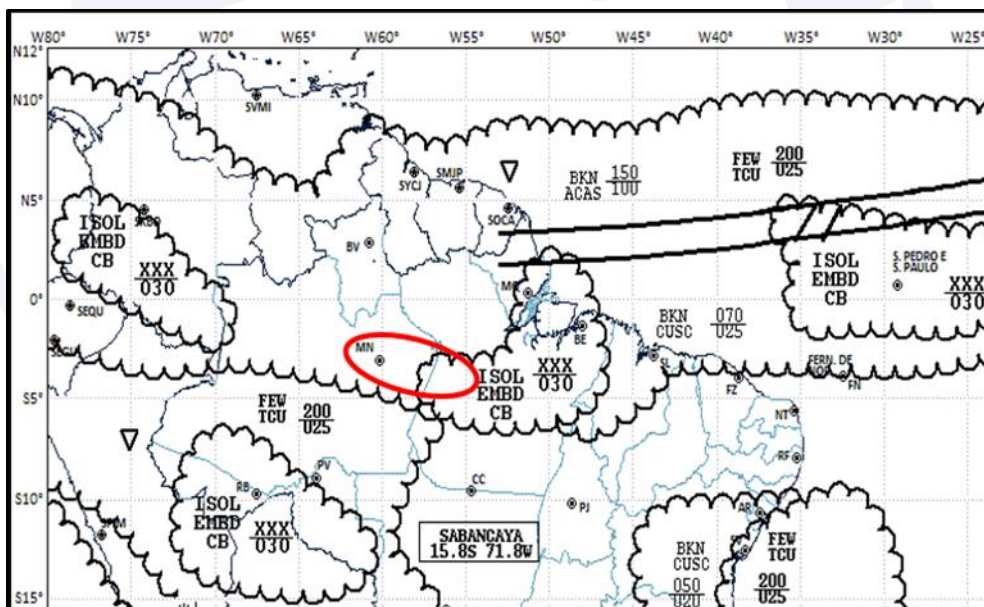


Figure 1 - SIGWX chart of 16MAY2018, 12h00min (UTC), highlighting the clouds present in the region of Itacoatiara - AM. The ellipse shows the region of the proposed route.

The infrared satellite image of 10h30min (UTC), obtained at the REDEMET site, indicated large cloudiness in most of the route to be flown (Figure 2).

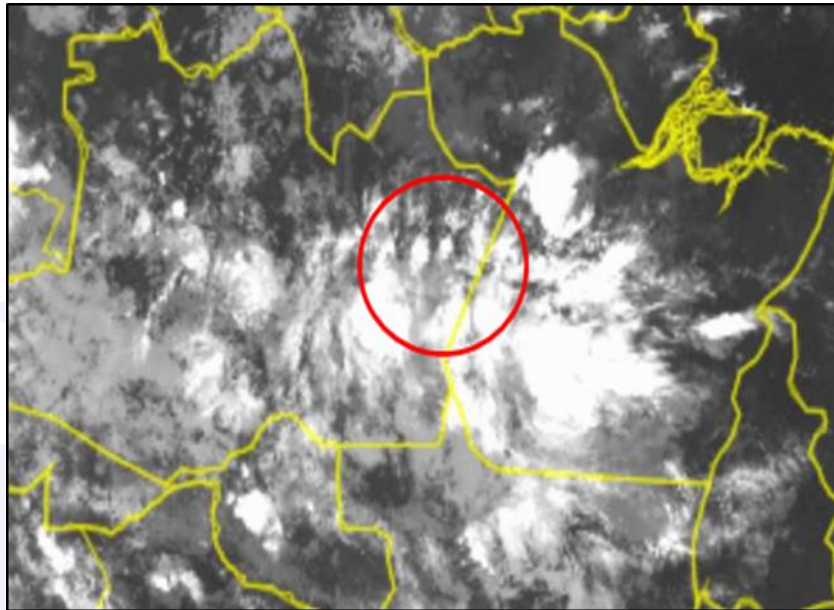


Figure 2 - Infrared satellite image of 16MAY2018, at 1030 (UTC). The detail shows approximately the region of the route flown by the aircraft.

The visible satellite image, 1230 (UTC), also provided by the site, indicated a large cloud cover throughout the route (Figure 3).

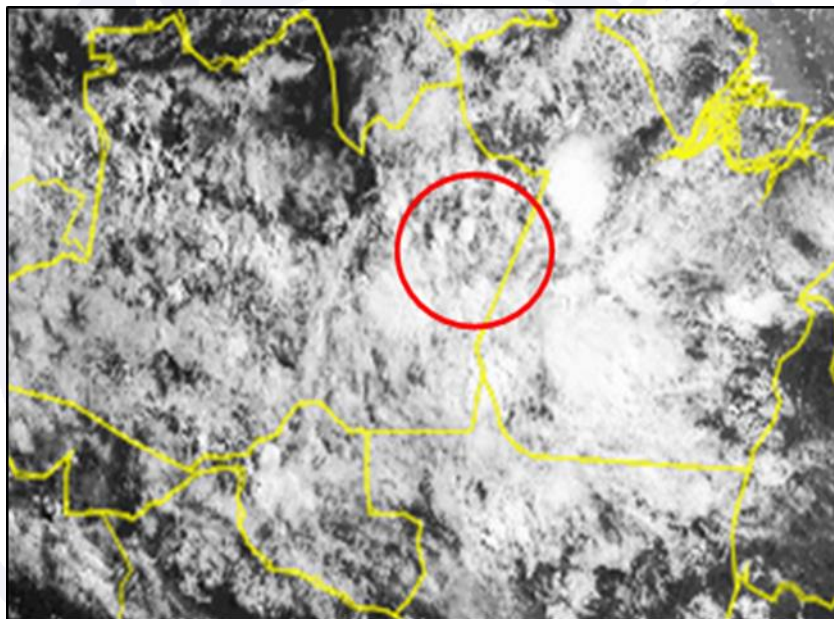


Figure 3 - Visible satellite image of 16MAY2018, at 1230 (UTC). The detail shows approximately the region of the route flown by the aircraft.

In the highlighted image obtained through the CPTEC, at 1100 (UTC), it was possible to observe a great meteorological formation at the scene of the accident, with an estimated coverage of 65km in diameter. This type of cloudiness (TCU) has very strong ascending and descending currents (Figure 4).

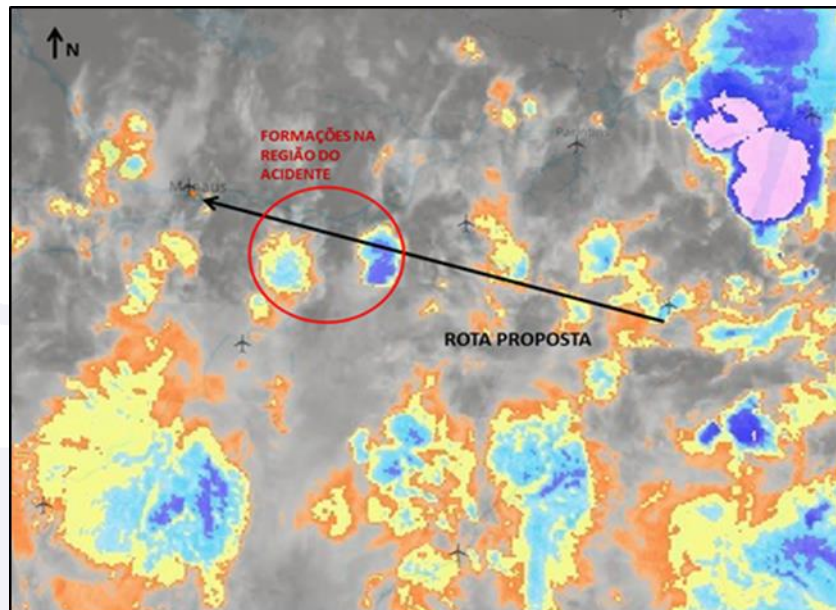


Figure 4 - Enhanced satellite image of 16MAY2018 at 1100 (UTC). The detail in red shows the formations in the region of the accident and, in black, the flight route proposed by the aircraft.

In addition, local observers reported that there was a lot of rain in the area at the time of the accident.

1.8 Aids to navigation.

Nil.

1.9 Communications.

The crew did not make radio contact with the Amazon Area Control Center (ACC-AZ). The only communication established occurred 12 minutes after take-off, with Rádio Itaituba, in which the pilot confirmed the data contained in the flight plan.

1.10 Aerodrome information.

The occurrence took place outside the Aerodrome.

1.11 Flight recorders.

Neither required nor installed.

1.12 Wreckage and impact information.

The impact occurred in a dense forest area in the municipality of Itacoatiara - AM, distant 25 NM from the Aerodrome of this city, with evidence of previous impact on two trees. The wreckage distribution was the concentrated type.

Based on the evidence, the first impact occurred in a pitch down attitude (approximately 75°), with a slight lateral inclination to the left, causing the collision of the wings and the horizontal stabilizers against the trees.

The last impact occurred against the ground opening a 3m horizontal crater, 1m deep.

In the crater, the engine, a propeller blade and some components of the instrument panel were found buried, which were not identified, due to the damage caused by the impact (Figure 5).



Figure 5 - Crater and place where the engine and the propeller were buried, plus some unidentified panel items.

After the last impact, the aircraft stopped at 180° from the axis of displacement, 2m away from the crater, tilted to the left, without the wings and the elevators. The vertical stabilizer was sectioned in half and the steering rudder was attached to the aircraft by the control cables, but out of its original position.

There was no fire after the total stop.

The landing gear, of the retractable type, was in the retracted position. It was not possible to identify the position of the flaps and the trims of the elevators, since both were torn from the fuselage, due to the impact on the ground.

The aircraft's cabin destruction degree prevented the verification of equipment and instruments. In addition, a few people moved the aircraft and some components of its structure disappeared.

There was a characteristic odor of aviation gasoline on the spot.



Figure 6 - Position of the aircraft after the total stop. Without wings and with the cabin destroyed.



Figure 7 - Tail of the aircraft without rudder and elevator. The violence of the impact against the ground can be identified by the kneading and twisting of part of the fuselage observed in the photo.



Figure 8 - Wreckage of the front part and cabin of the aircraft.

1.13 Medical and pathological information.

1.13.1 Medical aspects.

The Technical Police were not able to collect samples of the pilot's body in order to carry out tests (toxicology, alcoholism, among others), due to the state in which it was in the middle of the wreckage.

Despite this, people close to the pilot reported that he did not have the habit of drinking alcohol and other substances that could compromise his physical condition for the performance of air activity.

Regarding human physiology and space orientation during flight, due to the meteorological conditions present at the time of the accident, it is emphasized that, under normal conditions, the human being is able to determine, with precision, its spatial orientation.

To do this, it uses information provided by the vestibular (inner ear), visual system and proprioceptive system (skin and joints), the visual system being the most important, since it provides 80% of guidance information.

Flight movements (curves, acrobatics and go-around procedures) drastically increase the risk of spatial disorientation, given the physiological limitations of human orientation systems. In these circumstances, guidance can be maintained with the help of instruments, when there are no visual references.

During flight under instrument conditions, there may be a disharmony between the ocular and vestibular systems, because one does not have the "horizon", the most important reference for the eyes.

This causes false sensations in the organs of balance, which may cause the pilot to have a spatial disorientation, that is to say, not being able to determine with precision the direction in which the surface of the Earth is in relation to his person and, with this, to lose control of the aircraft in flight.

1.13.2 Ergonomic information.

Nil.

1.13.3 Psychological aspects.

The commander operated this aircraft regularly from 2013 to 2016, at which time he obtained his first contract as a private pilot. After that period, he started working for another operator, flying the same aircraft model. He was satisfied with his current job, both because he was doing what he liked most - flying, and because the financial part is up to date.

The pilot, who was a close friend of his former employer and owner of the crashed aircraft, requested the plane to be flown to Flores Aerodrome - AM (SWFN), in order to transport his current employer's partner in the Manaus – Itaituba leg.

A relative, through a SPOT brand satellite tracker, was accompanying the flight of the occurrence in question. According to information collected, it was this relative member who contacted the owner of the aircraft at 1300 UTC, stating that the SPOT, which was scheduled to send messages from the aircraft's location every five minutes, had stopped working in the time interval between 1206 and 1211 (UTC).

This relative also pointed out that the pilot was concerned to always takeoff with the tank full.

In the last months before the accident, the pilot reported to his relatives, on several occasions, that he was going through many bad weather conditions on the Itaituba-Manaus route. So, in planning this route, he tried to leave Itaituba early enough, so that there would be time to return on the same day.

There were no reports that the pilot was experiencing any mental or physical problem.

1.14 Fire.

There was no fire.

1.15 Survival aspects.

There were no survivors.

1.16 Tests and research.

Nil.

1.17 Organizational and management information.

The owner of the aircraft had, in addition to the crashed aircraft, two more, one of which is in the process of being sold. The base of his company was in the municipality of Itaituba - PA, and he resided in a farm, where there was a registered runway.

In the period from 2013 to 2016, the owner had hired the commander involved in this occurrence as a private pilot.

1.18 Operational information.

It was considered that the aircraft was within the weight and balance limits specified by the manufacturer.

The calculation was made based on full fuel tanks, 30kg of cargo and 85kg of each person on board.

The take-off took place five minutes before the start of the meteorological service, that is, there was no updated information and the last available SBIH METAR was the 2145 UTC of the previous day.

The pilot made contact only with Rádio Itaituba. There was no contact with the Amazonic Center. The Amazonic FIR operated as Class G airspace for flights under Visual Flight Rules (VFR), that is, it only provided information and alert service, which did not oblige the pilot to make radio contact, according to ICA 100-12, 2016:

"5.1.9 When flying in airspace ATS classes E, F and G, VFR flights are not subject to air traffic control authorization, receiving only flight information and alert services from ATS bodies."

As the aircraft was not being controlled by the Air Traffic Service (ATS), it was not being viewed on the radar.

The Flight Plan, presented at 2332, on 15MAY2018, on the internet, defined the execution of the flight between the cities of Itaituba - PA, and Manaus - AM, at FL045.

Field 9 was incorrectly filled out as the aircraft type for PR-RCJ was C210 and not P32R, as can be seen from the copy provided by the CINDACTA IV, despite there is no relation between the incorrectness and the accident (Figure 9).

HORA DE APRESENTAÇÃO Filing Time		REMETENTE Originator	
15	23:32	SBEGYOYX <<	
IDENTIFICAÇÃO COMPLEMENTAR DE DESTINATÁRIO (S) E/OU REMETENTE Specific Identification of addressee(s) and/or originator			
3 TIPO DE MENSAGEM Message type		7 IDENTIFICAÇÃO DA AERONAVE Aircraft identification	
<<≡ (FPL		PRRCJ	
9 NUMERO Number		TIPO DE AERONAVE Type of aircraft	
1		P32R	

Figure 9 - Detail of the completion of the flight plan form.

The fall of the aircraft was in the municipality of Itacoatiara - AM, in a dense forest, 100 nautical miles away from the destination.

1.19 Additional information.

There was an Emergency Locator Transmitter (ELT) installed on the aircraft, however, this equipment did not emit a signal, since its antenna was broken by the impact of the aircraft against the ground, thus causing difficulty in locating the wreckage.

The Investigation Team informed the owner that the removal of the wreckage from the accident site was his responsibility, as provided in Art. 88, Q caput and §2, of the Aeronautics Brazilian Code (CBA), as well as to inform about the intended actions. This would make it possible to perform analyzes of the powertrain.

1.20 Useful or effective investigation techniques.

Nil.

2. ANALYSIS.

It was a cargo and passenger transport flight between SBIH and SWFN.

The documentation of the last IAM of the aircraft, completed on 01SEPT2017, was up to date. The Airworthiness Certificate was valid. The airframe, engine and propeller logbooks were not located and the Aircraft Flight logbook was outdated, which made it impossible to further analyze the maintenance performed.

The aircraft was within the limits of weight and balance.

The aircraft type completed in the flight plan was different from the aircraft, but it did not influence the occurrence.

Despite having been informed by the Investigation Team, the owner did not remove the wreckage from the site. Therefore, future actions, such as engine opening and powertrain analysis were made unfeasible, since the engine remained buried at the site of the accident.

Due to the destruction of the aircraft and the movement of the wreckage prior to the arrival of the Investigation Team, it was not investigated whether there was any system failure or component loss in flight, as some parts of the aircraft were not found at the wreckage site.

The pilot had valid CMA and MNTE Rating.

The recent experience could not be verified, due to lack of records of flights performed by the commander and his last flight registered with the SACI on April 2017.

Although it was not possible to perform (toxicology, blood alcohol, etc.) exams in the pilot, the interviewees informed that he did not drink alcohol and other substances that could compromise his physical condition for the performance of the air activity.

It was not possible to confirm whether the pilot used the updated route and destination weather information in his planning, although these were available on the internet.

Taking off before the start of the local aeronautical meteorological service could suggest that the pilot did not have up-to-date information, since only the conditions observable by the pilot himself would be available.

The non-presentation of the aircraft documentation and the non-removal of the wreckage made it difficult to collect essential aspects for the identification and detailed analysis of all the factors contributing to the occurrence.

Thus, the owner failed to comply with the provisions of Art. 88, Q caput and §2, of the CBA.

Although en-route meteorological conditions were within regulatory minimums, the dense cloud cover in the region could have led to detours along the route, as well as posing a risk to the operation since the aircraft was not equipped with weather radar.

The pilot had reported family members about having been through many bad weather conditions on the Itaituba-Manaus route and, because of this, he planned the flights in order to be able to come back at the same day. In view of this fact, it is possible to infer that these situations probably made him apprehensive, even more if we associate the fact that his Instrument Flight Rating - Airplane (IFRA) was expired.

Considering the conditions of dense cloudiness on the route and a lot of rain in the region, it is possible that the pilot's emotional reactions have been impaired, increasing his level of anxiety or even blocking his cognitive and psychomotor reactions.

However, it was also observed that, despite showing a concern for meteorology in the region, the pilot assumed the risk of flying under degraded weather conditions without having his instrument flight rating valid, which would show a high level of confidence on the operation.

In this way, if the pilot chose not to make the deviations, it could enter instrument flight conditions, that is, when there is no visual contact with the ground.

The transition from the visual flight to the instrument flight, with an expired IFRA Rating, could contribute to spatial disorientation and possible loss of control in flight.

In this sense, it is possible that the pilot has become disoriented and lost control of the aircraft due to bad weather, leading to an abnormal attitude and then diving uncontrollably until it collides with the trees and the ground, with high speed and wide impact angle.

This hypothesis was reinforced by the characteristics of the wreckage observed at the accident site, which were compatible with the scenario described.

3. CONCLUSIONS.

3.1 Facts.

- a) the pilot had valid Aeronautical Medical Certificate (CMA);
- b) the pilot had valid MNTE Rating;
- c) the pilot's IFRA Rating was expired since March 2018;
- d) it was not possible to confirm if the pilot was qualified and had experience in the type of flight;
- e) the aircraft had valid Airworthiness Certificate (CA);
- f) the aircraft was considered within the limits of weight and balance;
- g) it was not possible to verify if the airframe, engine and propeller logbooks records were updated;
- h) the aircraft had no weather radar;
- i) it was not possible to confirm if the pilot used the updated route and destination weather information in his planning;
- j) the prevised meteorological conditions en-route were within the minimum regulations;

- k) there was great cloudiness on the route;
- l) local observers reported that there was a lot of rain in the area at the time of the accident;
- m) the pilot did not make contact with the Amazonic Center;
- n) the aircraft crashed into the ground with high angle of attack and high speed;
- o) the ELT did not emit signal after the occurrence;
- p) the aircraft was not seen on the ACC-AZ radar;
- q) the aircraft was not removed from the scene after the accident;
- r) the aircraft was destroyed; and
- s) the pilot and the passenger suffered fatal injuries.

3.2 Contributing factors.

- **Control skills – undetermined.**

It is possible that, due to restricted visibility conditions, with a dense layer of cloudiness, the pilot acted inappropriately in flight commands and lost control of the aircraft, which caused its collision against the ground.

- **Attitude – undetermined.**

Assuming the risk of operating with overdue instrument flight rating on a route showing adverse weather conditions could demonstrate the pilot's high level of confidence in both, itself and the situation.

- **Adverse meteorological conditions – undetermined.**

Although weather conditions allowed to operate within regulatory minimums, the region where the accident occurred was with dense cloudiness and heavy rain which may have led the pilot to operate in a scenario for which he would not be adequately qualified.

- **Disorientation – undetermined.**

Conditions of low visibility and without an adequate visualization of the horizon may have contributed to a spatial disorientation and entailed the loss of control of the aircraft and consequent collision against the ground.

- **Emotional state – undetermined.**

It is presumed that, considering the conditions of dense cloudiness on the route and much rain in the region, the pilot's emotional reactions have been impaired, increasing his level of anxiety or even blocking his cognitive and psychomotor reactions.

- **Decision-making process – undetermined.**

In face of the route scenario, with dense cloudiness, a lot of rain and operating a non-equipped aircraft with meteorological radar, it is probable that the pilot did not adequately evaluate the local meteorological conditions that could affect the operation.

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”.

Recommendations issued at the publication of this report:

To the Brazil’s National Civil Aviation Agency (ANAC):

A-088/CENIPA/2018 - 01

Issued on 16/05/2019

Disseminate the contents of this Final Report, in order to alert General Aviation pilots to the risks associated with operating in adverse weather conditions.

5. CORRECTIVE OR PREVENTATIVE ACTION ALREADY TAKEN.

None.

On May 16th, 2019.