

COMMAND OF AERONAUTICS
AERONAUTICAL ACCIDENT INVESTIGATION AND
PREVENTION CENTER



FINAL REPORT
A - 052/CENIPA/2013

<u>OCCURRENCE:</u>	ACCIDENT
<u>AIRCRAFT:</u>	PT-VAQ
<u>MODEL:</u>	EMB 820C
<u>DATE:</u>	12 MARCH 2013



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 item 3.1, 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.

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SYNOPSIS

This is the Final Report of the 12 March 2013 accident involving the EMB-820C aircraft, registration PT-VAQ. The accident was classified as loss of control in flight.

The aircraft disappeared after making a last call to the local radio station on the approach for landing.

The aircraft was found in the morning of the following day at a distance of approximately 5 km from the aerodrome.

The occupants of the aircraft (nine passengers and the pilot) perished in the crash.

The aircraft was completely destroyed.

An accredited representative of the Canadian TSB was designated for participation in the investigation.

GLOSSARY OF TECHNICAL TERMS AND ABBREVIATIONS

ANAC	(Brazil's) National Civil Aviation Agency
ACC	Area Control Center
ATC	Air Traffic Control
ATS	Air Traffic Services
CA	Airworthiness Certificate
CENIPA	Aeronautical Accident Investigation and Prevention Center
CG	Center of Gravity
CHETA	Airline Company Homologation Certificate
CHT	Technical Qualification Certificate
CMA	Aeronautical Medical Certificate
CRM	Corporate Resource Management
CVR	Cockpit Voice Recorder
ELT	Emergency Locator Transmitter
FL	Flight Level
IFR	Instrument Flight Rules
Lat	Latitude
Long	Longitude
MLTE	Airplane, Multi-Engine, Land
MNTE	Airplane, Single-Engine, Land
PCM	Commercial Pilot (Airplane category)
PPR	Private Pilot (Airplane category)
SACI	Integrated Civil Aviation Information System
SBBE	ICAO Location designator – Belém Aerodrome, State of Pará
SBMD	ICAO Location designator – <i>Monte Dourado</i> Aerodrome, State of Pará
SERIPA	Regional Aeronautical Accident Investigation and Prevention Service
SIPAER	Aeronautical Accident Investigation and Prevention System
SN	Serial Number
SNETA	National Air Taxi Companies Union
ELT	Emergency Locator Transmitter
UTC	Coordinated Universal Time
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions

AIRCRAFT	Model: EMB 820C <i>Carajá</i> Registration: PT-VAQ Manufacturer: EMBRAER	Operator: <i>Fretax Táxi-Aéreo</i>
OCCURRENCE	Date/time: 12 MARCH 2013 / 23:30 UTC Location: <i>Monte Dourado</i> Lat. 00°52'01"S – Long. 052°38'37"W Municipality – State: <i>Almeirim - Pará</i>	Type: Loss of control in flight

1 FACTUAL INFORMATION

1.1 History of the occurrence

The aircraft departed from SBBE at 22:07 UTC on a night-time VFR flight at FL085, destined for SBMD, with a pilot and nine passengers on board.

On the approach for landing at the destination, after making a call to the local Radio at 23:23 UTC, the aircraft disappeared.

In the morning of the next day, the crashed aircraft was found at a distance of 5 km from the aerodrome.

1.2 Injuries to persons

Injuries	Crew	Passengers	Third parties
Fatal	01	09	-
Serious	-	-	-
Minor	-	-	-
Uninjured	-	-	-

1.3 Damage to the aircraft

The aircraft was completely destroyed.

1.4 Other damage

Nil.

1.5 Personnel information

1.5.1 Information on the crew

HOURS FLOWN	
	PILOT
Total	1,300:00
Total in the last 30 days	31:40
Total in the last 24 hours	01:05
In this type of aircraft	70:00
In this type in the last 30 days	01:40
In this type in the last 24 hours	01:05

NB.: Information provided by the operator and third parties.

1.5.1.1 Professional formation

The pilot did his Private Pilot course (airplane category) in the *Pará de Minas* Flying School (State of Minas Gerais) in 2009.

1.5.1.2 Validity and category of licenses and certificates

The pilot had a Commercial Pilot license (airplane category). He also had valid technical qualifications regarding Airplane Single-Engine Land, Airplane Multi-Engine Land, and IFR rating.

1.5.1.3 Qualification and flight experience

The pilot had qualification, but had little experience in the aircraft for the type of flight.

1.5.1.4 Validity of the medical certificate

The pilot had a valid Aeronautical Medical Certificate (CMA).

1.6 Aircraft information

The aircraft (SN820140) was manufactured by EMBRAER in 1986.

Its airworthiness certificate was valid.

The airframe, engine, and propeller logbooks' records were up-to-date.

The last inspection of the aircraft (type 100/200 hours) was performed on 7 March 2013 by the *Tema Tecnologia Manutenção de Aeronaves Ltda. workshop*, in Belém, State of Pará. The aircraft flew 50 hours and 40 minutes after the inspection.

The overhaul of the aircraft (type 1,000 hours) was made on 10 April 2012 at the same workshop mentioned in the above paragraph. The aircraft flew 454 hours and 20 minutes after the overhaul.

The PT6A-27 Pratt & Whitney engines had a total of 15,303 hours, corresponding to 15,259 cycles.

1.7 Meteorological information

There was available weather information, which the pilot accessed before departing from SBBE.

Although the night was dark, there were favorable night-time VMC conditions.

1.8 Navigational aids

Navigational aids were available along the intended route.

The route was over a largely unpopulated area, with few visual ground references (jungle area), especially when near the destination.

1.9 Communications

Communications between the pilot and ATC were uneventful.

The pilot made contact with *Monte Dourado* Radio at 22:55 UTC, informing that he would call again when directed by the Amazonian Center (ACC responsible for surveillance and control of general circulation air traffic in the Amazonian Region).

At 23:05 UTC, the pilot called *Monte Dourado* Radio to report that he had already been authorized and was descending, estimating *Monte Dourado* in twelve minutes.

At 23:18 UTC, the pilot reported on the downwind leg for runway 08. That was his last contact.

1.10 Aerodrome information

The Aerodrome of *Monte Dourado* (SBMD) was public/private, with day- and night-time VFR/IFR operations, and had a radio station.

The runway was paved with asphalt, thresholds 08/26, measuring 1,800m x 30m, at an elevation of 677ft.

At the moment of the occurrence, the runway was not blocked, and was operating normally.

The runway was in a remote area surrounded with vegetation. There were few dwellings and illuminated spots in the vicinity.

1.11 Flight recorders

The aircraft was equipped with a Honeywell Cockpit Voice Recorder (Part Number 980-6023-001, *Serial Number* 0356).

The data that was downloaded referred to a flight prior to the one of the occurrence (date unknown).

1.12 Wreckage and impact information

The accident occurred at a distance of approximately five kilometers from the aerodrome, in an area of jungle. The aircraft crashed into the ground at an angle of approximately 20° on track 264°, without any previous impact.

The distribution of the wreckage was of the concentrated type, with collision of the aircraft nose and engines with the ground, without any practical longitudinal movement.

The retractable main landing gear was found outside of its upper lock position, having been torn away at the impact with the ground.

The elevator trimmer was found in a slightly pitch-down position.

During the Go-Team initial action, it was observed that a blade of each propeller had detached from the cube as a result from the impact with the ground.

The state of the engines in the crash site did not allow for any preliminary analysis due to the intense action of the fire.

The engines and propellers were removed from the wreckage in order to be analyzed in a certified workshop in the presence of the investigator in charge.

At the moment of the accident, there were approximately 180 liters of fuel remaining in each tank.

The level of destruction and charring of the aircraft did not allow for an evaluation of the aircraft equipment and instruments.

1.13 Medical and pathological information

1.13.1 Medical aspects

An investigation conducted by a professional accredited with Human Factor Medical Aspect found no evidence regarding the contribution of this aspect to the occurrence of the accident. The investigation confirmed that the pilot had a valid medical certificate (CMA) showing that he was in good health. He had had enough rest and was fit for flight.

1.13.2 Ergonomic information

Nil.

1.13.3 Psychological aspects

1.13.3.1 Individual information

The pilot was 27 years old, and had been working for the company for a year and seven months.

His father, who was also a pilot in the same air taxi company, indicated him as a copilot. They flew together for 5 months, with the father in the role of the pilot's flight instructor. After this time, the instructor reported that the pilot was ready for the function of aircraft captain.

According to information gathered, two hours before takeoff the pilot called his father on the phone, and said he was feeling insecure in relation to the flight. Although the route was known to him, that would be his first night-time flight on the aircraft, and also his first flight without a copilot.

Once, while flying with his father, the pilot advised him of a possible spatial disorientation at the moment of landing in *Monte Dourado*. On the occasion, the father (who was flying as PIC) recognized that, if it weren't for his son's assistance, he would have become disoriented and would have suffered an accident in that runway.

In interviews, some of the pilot's peers said that they considered him a good, diligent, studious, and disciplined professional. Others said that he was self-confident and agitated when flying an airplane.

1.13.3.2 Psychosocial information

The pilot had good interpersonal relationships. However, the situation changed when he was promoted to captain before other workmates that were senior to him in the company.

Copilots reported that they did not feel comfortable to fly with him, as they understood that he had been promoted too early.

Those who worked for the company said that the *climate* was good among the employees, but after a change in the high staff, the organizational climate had worsened.

According to them, this was due to the fact that the high staff did not answer requests made by the pilots regarding maintenance procedures, and also due to the way the shift work was being managed.

1.13.3.3 Organizational information

According to information obtained in interviews, the pilot was indicated by his father to work in the company soon after completing his training as a pilot. His father, in addition to being a company pilot, was a friend of the Director-President's. The pilot had been hired in 2011, and had little previous experience.

He spent a year as copilot and, in July 2012, was promoted to captain, despite the company's norms, according to third parties, establishing a minimum one and a half year as copilot before promotion.

According to his father, his promotion was a normal fact, since he was a good pilot and, thus, met the requirements for being promoted to captain.

For his peers, his promotion to captain came as a surprise, since there were some more experienced copilots in the company that had been hired before he was, and were not promoted.

According to them, he was not ready for the position. Some of the copilots did not feel safe to fly with him as captain of the aircraft.

Several people who had worked for the company at different times reported that, even against their will, they had flown the aircraft with a defective artificial horizon. The crewmembers took the risk, many times associated with night-time flights and in bad weather conditions, considering a crew of two pilots.

There was mention of situations in which a pilot, upon returning from holidays, without first being readapted to the aircraft, would be designated for a night-time flight, sometimes without the artificial horizon instrument.

Despite the fact that they would report a defective artificial horizon or radar, the problems would not be solved by the maintenance sector. On account of this situation, some pilots were said to have requested not to be designated for the activities of the company.

CRM training was not done regularly. It only became regular when the company's CHETA was suspended by the ANAC after the accident.

The company closed the office they had at the airport, and so the coordination of the flights was done through the telephone, with the pilot receiving the aircraft already refueled. This was a source of difficulties for the communication between the pilots and the company's HQ and in relation to the pre-flight procedures, and resulted in many takeoffs with excessive aircraft weight, on account of the cargo and full fuel load. Another common company practice was to dispense with the copilot and make use of his/her seat for another passenger.

The pilot was designated for the accident flight because two other pilots were not available on that day.

1.14 Fire

After crashing into the ground, the aircraft was consumed by a post-impact fire.

1.15 Survival aspects

O Emergency Locator Transmitter (ELT) of the aircraft was activated automatically, but the appropriate signal was not transmitted because the cables connecting the equipment to the antenna had broken.

The aircraft was found in the morning of the next day. All the charred bodies of the occupants were inside it.

1.16 Tests and research

The wreckage of the PT6A-27 Pratt & Whitney engines (SN41363 and SN41364) was sent to a certified workshop for analysis.

After the analysis of the engines, the conclusion was that both of them were operating and developing power at the moment of the crash.

The HC-B3TN-3C Hartzell propellers (SN BUA-29410 and BUA-29357) were also examined by a certified workshop, in the presence of the investigator in charge.

The analysis made it possible to conclude that the position of both propellers characterized a pace consistent with a regime of flight.

1.17 Organizational and management information

The company's main office was in São Paulo. At the time of the occurrence, the company had a secondary operational base in Belém, State of Pará.

The company started its activities in this secondary operational base in August 2004, operating as an air taxi company.

On the occasion of the accident, the company fleet was composed of seven aircraft (a Beech 58, a Cessna 206, two Embraer 820C's, as well as four Cessna 208 Caravan's). The company had a board of twenty-three pilots, being sixteen captains and seven copilots. All the captains flew at least two different types of aircraft.

All the captains were participants in the shift to operate the Embraer 820C.

Although the pilot had already flown from the base in Belém, he was in the last months flying regularly from the base in São Paulo

The company was hired to transport nine passengers, making use of an ANAC-issued authorization contained in its Operating Specifications, allowing the copilot seat of the Embraer 820C aircraft to be occupied by a passenger.

The company was said to have asked the pilot to dismiss the copilot and take another passenger.

According to accounts of other people working for the company, Fretax Taxi-Aéreo was undergoing a series of organizational changes regarding both operational and maintenance procedures, which did not contemplate the expectation of the pilots and prioritized the commercial sector, in detriment of operational safety.

1.18 Operational aspects

The purpose of the flight was to transport nine passengers from SBBE to SBMD on a night-time VFR flight.

The route was known to the pilot, but the accident flight was his first night-time flight on that aircraft, and also his first flight as pilot in command without a copilot.

The aircraft airworthiness certificate prescribed a maximum of eight passengers with one crew member for VFR flights (two crewmembers for IFR flights).

According to the Operating Specifications (Revision 34, 26 February 2013), the company had authorization to carry nine passengers with one crewmember, provided that the flight was not IFR.

According to the interviewees, the pilot was considered a good crewmember, but did not have the experience necessary to fly as pilot in command of the aircraft involved in the accident.

The operational progress of the pilot towards becoming an Airplane Multiengine Land (MLTE) aircraft captain started on 22 June 2012 with a theoretical training.

All the theoretical training, flight training, and flight check was given by the company's Chief-Pilot, who was also an examiner (accredited by the ANAC) for the company.

The aforementioned process started and finished in a period of 15 days, and was completed with a check flight. The pilot was declared second pilot in command of MLTE aircraft on 17 July 2012.

The upgrading training to become a captain of MLTE aircraft started on 6 July 2012, one day after the check flight which considered him apt to work as second pilot in command. This upgrading training was completed on 21 July 2012.

The theoretical training, the training flights, and the flight checks were also given by the company's Chief-Pilot, who considered the candidate apt to work as captain of MLTE aircraft. The pilot was declared captain of MLTE/MNTE aircraft on 31 July 2012.

After entering the instructor's ANAC code and registrations of the company's MLTE aircraft in the ANAC's Integrated Civil Aviation Information System, no records were found concerning a check flight done by the pilot on 21 July 2012 (the date that was indicated in the pilot's evaluation sheet).

The aircraft was within the Weight and Center of Gravity limits specified by the manufacturer.

1.19 Additional information

During the investigation, other pilots reported that they had already experienced spatial disorientation episodes due to the lack of illumination and reference points on night-time VFR flights in SBMD.

1.20 Utilization of other investigation techniques

Nil.

2 ANALYSIS

The investigation confirmed that the pilot had a valid medical certificate (CMA) showing that he was in good health. He had had enough rest and was fit for flight.

According to the internal indications found in the hot section of the engines, it was possible to confirm that both engines were operating and developing power at the moment of the crash.

As for the propellers, laboratory analyses showed that both of them were in a flight pace at the moment of impact with the ground.

From the analyses, it was possible to rule out the participation of a contingent failure of the aircraft power plant in the occurrence of the accident.

The accident occurred at a distance of approximately 5 kilometers from the aerodrome. The runway was remotely located in relation to town. It was surrounded by vegetation, with few dwellings and illuminated spots in the vicinity.

It was a dark night despite the VMC conditions.

Since it was not possible to retrieve the CVR data, the investigation of this occurrence was supported by the physical evidence found in the crash-site, and by information provided by third parties.

The aircraft crashed into the ground at an angle of approximately 20° on track 264°, with no previous impact.

The distribution of the wreckage was of the concentrated type, with collision of the aircraft nose and engines with the ground, with practically no longitudinal movement.

The type of collision and the distribution of the wreckage made it evident that the aircraft was practically without lift at the moment of impact with the ground.

At the downwind leg, while preparing the aircraft for landing, the pilot is likely to have allowed both speed and power to be reduced to values below the minima necessary for the maintenance of a level flight.

Since it was confirmed that the engines were developing power at the moment of impact, it is possible that the pilot attempted to recover from the stall, but, on account of not having sufficient altitude, he did not succeed.

Such hypothesis is based on the aspects shown below:

a) the isolated location of the runway in the midst of dense vegetation, with poor visual references that could otherwise have assisted the pilot in maintaining a VFR flight;

b) dark night condition, making it difficult to fly VFR;

c) last radio contact from the pilot to the local radio station, informing that he was at the downwind leg for runway 08;

d) the aircraft crashed into the ground on track 264^o, in a position consistent with the downwind leg;

e) it was the first time the pilot was flying the aircraft alone, without assistance from a copilot; and

f) the pilot's low frequency in flying this type of aircraft.

For the flight in question, the copilot's seat was utilized for the transport of a ninth passenger.

The transport of a ninth passenger on the copilot's seat on a VFR flight had authorization granted by the ANAC (National Civil Aviation Agency), and was in accordance with the company's operating specifications.

It was not possible to determine whether the company dismissed the copilot on account of the need to transport a ninth passenger. Such procedure, in certain adverse conditions of visibility, could jeopardize operational safety.

Neither, was it possible to determine whether the presence of a passenger in the pilot's cockpit interfered with his flying the aircraft.

As for the pilot professional formation, one could see that it had been a shortened one. An inadequate formation in quantitative terms may deprive the pilot from full knowledge and other technical conditions necessary for performing the aeronautical activity.

At the time of the occurrence, the company had a fleet of seven aircraft, being a Beech 58, a Cessna 206, two Embraer 820C's, and four Cessna 208 Caravan's. They had a team of twenty three pilots (sixteen captains and seven copilots).

The company had four different aircraft types, and all the captains flew at least two types of equipment. Such practice may push operational safety to its limits, mainly when night-time flights are allowed with just one pilot on board and in a region with few visual references, as was the case in this accident.

The practice of conducting flights without artificial horizon and radar may lead to spatial disorientation, jeopardizing operation safety.

According to accounts of other people working for the company, *Fretax Taxi-Aéreo* was undergoing a series of organizational changes regarding both operational and

maintenance procedures, which did not contemplate the expectation of the pilots and prioritized the commercial sector, in detriment of operational safety.

According to the airworthiness certificate, the aircraft had capacity for transporting eight passengers and a minimum crew of one pilot on VFR flights, with a requirement of two pilots for transporting passengers on IFR flights.

On the accident flight, the copilot's seat was utilized for accommodating a ninth passenger. The transport of a ninth passenger occupying the copilot's seat on a VFR flight was authorized by the ANAC, according to the company's Operating Specifications.

It was possible that the company's Operations Sector gave priority to their Operating Specifications, and did not consider, in a more conservative fashion, the prescription contained in the airworthiness certificate of the aircraft.

3 CONCLUSIONS

3.1 Facts

- a) the pilot had a valid aeronautical medical certificate (CMA);
- b) the pilot had a valid technical qualification certificate (CHT);
- c) the pilot had qualification but little experience in the aircraft for conducting the flight;
- d) the aircraft had a valid airworthiness certificate;
- e) the aircraft weight and balance was within the prescribed limits;
- f) at 22:07 UTC, the aircraft departed from SBBE on a night-time VFR flight plan at FL085, destined for SBMD with a pilot and nine passengers on board;
- g) the flight route was known to the pilot, but it was his first night-time flight in that aircraft, and also his first flight as captain without a copilot.
- h) the landing strip was in an isolated area surrounded by dense vegetation with poor visual references;
- i) during the approach, after a last contact with the local Radio Station at 23:23 UTC, the aircraft disappeared;
- j) the aircraft was found in the morning of the next day, at a distance of approximately five kilometers from the destination aerodrome;
- k) the tests carried out in the aircraft power plant after the occurrence confirmed that the system was operational and developing power at the time of the crash;
- l) the aircraft was completely destroyed; and
- m) the pilot and passengers perished in the crash-site.

3.2 Contributing factors

3.2.1 Human Factor

3.2.1.1 Medical Aspect

Not a contributor.

3.2.1.2 Psychological Aspect

3.2.1.2.1 Individual information

a) Attitude – a contributor

The pilot took the risks inherent to that flight when he accepted to be the only crewmember on a night-time flight with an aircraft in which he lacked enough experience. It is therefore considered that the pilot was complacent when he accepted to fly the aircraft under those circumstances, taking the risks associated with the operation.

b) Emotional state – undetermined

The fact that the pilot made a phone call to his father, to tell that he was feeling insecure for conducting the flight, may be considered an indication that he was not confident, and this condition may have influenced negatively his operational performance during the descent procedure.

c) Motivation – undetermined

It is possible that the motivation of the pilot in making a fast progress in his career contributed to his acceptance of the challenge to operate the flight, even if he was not feeling fully confident.

d) Perception – undetermined

It is possible that the characteristics related to the type of flight, regions, time of the day, in addition to the fact that the pilot was flying the aircraft alone for the first time, contributed to an unclear perception of the relevant elements around him, leading him to a mistaken comprehension, which resulted in the deterioration of his ability to foresee the events.

3.2.1.2.2 Psychosocial information

Not a contributor.

3.2.1.2.3 Organizational information

a) Training – undetermined

The operational progress of the pilot in the company was expedited and, therefore, it is possible that for this reason he did not gather the necessary experience for conducting that type of flight.

b) Work organization – undetermined

It is possible that the way the work was organized within the company, with designation of pilots not readapted in the aircraft for night-time flights without artificial horizon, and for takeoffs with an aircraft weight above the one prescribed in the manual contributed to the event that resulted in the accident.

c) Organizational culture – undetermined

It is possible that the prioritization of the financial sector, in detriment of operational safety, contributed to the designation of a single pilot with short experience for transporting nine passengers.

3.2.2 Operational Factor

3.2.2.1 Concerning the operation of the aircraft

a) Application of controls – undetermined

It is probable that the pilot, during the preparation of the aircraft for landing, allowed the its speed and power to drop to a value below the minima required for maintenance of level flight on the downwind leg.

b) Influence from the environment – undetermined

It is possible that the location of the runway in an isolated area of the Amazonian jungle region, without visual references in a night-time flight, contributed to the pilot's difficulty maintaining a sustained flight.

c) Training – undetermined

It is possible that the training done by the pilot in a shortened manner deprived him from the knowledge and other technical abilities necessary for flying the aircraft.

d) Management planning – undetermined

The decisions of the company operation sector to designate a short-experienced pilot without a copilot for a night flight destined for an aerodrome located in a jungle region without visual reference with the terrain increased the risk of the operation. Therefore, the risk management process was probably inappropriate.

e) Pilot's little experience – undetermined

It was the first time the pilot was flying the aircraft on a night-time flight without a copilot. Since he had only little experience in the aircraft, it is possible that his operational performance was hindered in the management of tasks, weakening his situational awareness.

f) Managerial oversight – undetermined

It was not possible to determine whether the company chose to dispense with the copilot on account of the need to transport a ninth passenger and, thus, did not consider in a conservative manner the prescription contained in the aircraft airworthiness certificate by designating just one pilot for the flight.

3.2.2.2 Concerning ATS units

Not a contributor.

3.2.3 Material Factor

3.2.3.1 Concerning the aircraft

Not a contributor.

3.2.3.2 Concerning ATS technology systems and equipment

Not a contributor.

4 SAFETY RECOMMENDATION

A measure of preventative/corrective nature issued by a SIPAER Investigation Authority or by a SIPAER-Link within respective area of jurisdiction, aimed at eliminating or mitigating the risk brought about by either a latent condition or an active failure. It results from the investigation

of an aeronautical occurrence or from a preventative action, and shall never be used for purposes of blame presumption or apportion of civil liability.

In accordance with the Law n°12970/2014, recommendations are made solely for the benefit of the air activity operational safety.

Compliance with a Safety Recommendation is the responsibility of the holder of the highest executive position in the organization to which the recommendation is being made. An addressee who judges to be unable to comply with a Safety Recommendation must inform the CENIPA on the reason(s) for the non-compliance.

Safety Recommendations made by the CENIPA:

To the National Civil Aviation Agency (ANAC):

A-052/CENIPA/2013 – 001

Issued on 24/11/2014

Update the authorizations granted to the operators regulated by the Brazilian Civil Aviation Regulation 135 (RBAC 135) in what refers to night-time VFR operations outside terminal areas for transporting passengers with just one pilot, in order to mitigate the risks which exist in this type of operation in certain conditions and regions of the country.

A-052/CENIPA/2013 – 002

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Publicize the content of this report to aircraft operators regulated by the Brazilian Civil Aviation Regulation 135 (RBAC 135) at seminars, lectures, and like activities dedicated to owners, operators, and explorers of aircraft.

A-052/CENIPA/2013 – 003

Issued on 24/11/2014

Due to the latent conditions listed in this report, intensify actions aiming at inspecting the operator of the accident aircraft.

5 CORRECTIVE/PREVENTATIVE ACTION ALREADY TAKEN

Nil.

6 DISSEMINATION

- (Brazil's) National Civil Aviation Agency - ANAC
- Fretax Táxi-Aéreo
- National Air Taxi Companies Union (SNETA)
- SERIPA I
- Transportation Safety Board of Canada (TSB)

7 APPENDICES

Nil.

On 24 Nov 2014.