



Accident to the PIPER PA32-260
registered **N15902**
on Friday 1 December 2023
at Les Saintes - Terre-de-Haut (Guadeloupe)

Time	Around 10:00 ¹
Operator	Private
Type of flight	Passenger transport flight for remuneration
Persons on board	Pilot, four passengers
Consequences and damage	Pilot and passengers fatally injured, aeroplane destroyed
This is a courtesy translation by the BEA of the Final Report on the Safety Investigation. As accurate as the translation may be, the original text in French is the work of reference.	

**Collision with the surface of the water
shortly after take-off**

1 HISTORY OF THE FLIGHT

Note: the following information is principally based on statements, radiocommunication recordings, radar data and data from the GoPro camera on board the aeroplane.

The pilot, accompanied by four passengers, planned to make four flights departing from Saint-François aerodrome (Guadeloupe). The route included stops at La Désirade (Guadeloupe), Les Saintes (Guadeloupe) and Marie-Galante (Guadeloupe) aerodromes before returning to Saint-François. The passengers, who were members of the Regional Council of Guadeloupe and of a private company specialising in fibre-optic deployment, were commissioned to inspect various work sites on the islands.

Before departure, one of the two owners² of the aeroplane asked the aircraft fueller at Saint-François for additional fuel. The latter made a complete refuelling of the main tanks by adding 60 l (16 US gal³) to each of them, to reach their total capacity of 50 US gal. The owner specified to the BEA that he visually estimated that each of the auxiliary tanks contained approximately 15 l (4 US gal)⁴.

The first flight lasted 7 min and the second 21 min.

¹ Except where otherwise indicated, the times in this report are in local time. Two hours should be added to obtain the legal time applicable in Metropolitan France on the day of the event.

² "Owners" refers to the two partners/managers of an LLC which was provided with the aircraft registered in the name of a trustee on the US FAA registry.

³ Imperial unit for volume, the full form of which is US gallon (1 US gal is equivalent to approximately 3.78 l).

⁴ The manufacturer specified that the amount of fuel in the auxiliary tanks is difficult to assess without suitable instrumentation.

At 09:59, the pilot lined up and took off from runway 09 at Les Saintes aerodrome bound for Marie-Galante aerodrome. The read-out of the ADS-B and radar data showed that N15902 climbed to an altitude of 680 ft with a ground speed of around 70 kt. Approximately 1 min after take-off, the path of N15902 showed a stop in the climb and then the start of a right turn in descent. Vertical speed increased significantly before the transponder data transmission stopped. The last valid ADS-B detection was recorded at 10:01:06, around 2 NM off the coast of Les Saintes.

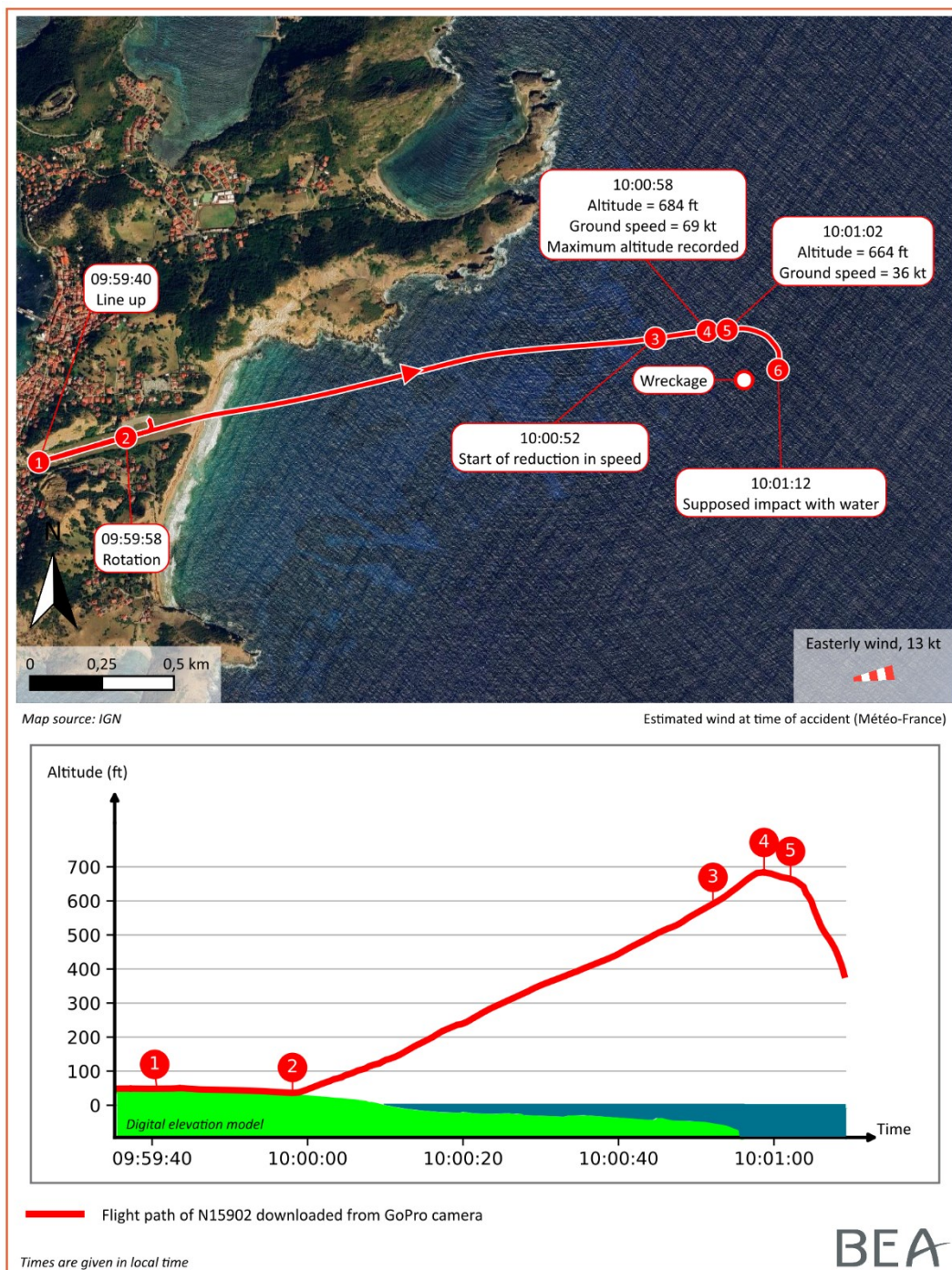


Figure 1: take-off of N15902 from runway 09 at Les Saintes aerodrome.

2 ADDITIONAL INFORMATION

2.1 Pilot information

The 59-year-old pilot held a European Commercial Pilot Licence - Aeroplanes (CPL(A)) issued in 2011 and a Private Pilot Licence - Aeroplanes (PPL(A)) issued in 2003. He held the Single-Engine Piston (SEP) rating, the Multi-Engine Piston (MEP) rating and the Instrument Rating with Performance Based Navigation privileges (IR-PBN). He also held a Flight Instructor - Aeroplane (FI(A)) rating issued in 2021.

The pilot also held a PPL(A) issued by the US Federal Aviation Administration (FAA) following the conversion of his European licence, subject to the validity of this.

He had logged around 4,245 flight hours, 3,003 hours of which as pilot-in-command. In the previous 12 months, he had logged 265 flight hours, at least 37 hours of which on PA32s.

It was not possible to determine his recent experience. However, witnesses indicated that he flew very regularly, on many types of aeroplanes, including on PA23s, PA28s, PA30s, PA39s, PA32s, PA34s, Be76s and P68TCs.

The pilot had a freelance contract. The privileges of his CPL allowed him to operate US-registered aeroplanes on French territory. He had been approved to use Les Saintes - Terre-de-Haut aerodrome.

2.2 Toxicological analyses

The post-mortem toxicological analyses performed on the aeroplane's occupants revealed the presence of cocaine in the bodies of the pilot and of two passengers. However, at the time of publication of this report, the examinations conducted were unable to determine whether this presence resulted from regular or occasional consumption, or from exogenous contamination. As a consequence, the toxicity level and its potential impact on the pilot's abilities could not be established.

2.3 Site and wreckage information

2.3.1 Aerodrome information

Les Saintes - Terre-de-Haut aerodrome is a restricted-use aerodrome. Pilots must have been approved to use it by a pilot instructor. It has an east-facing, downward-sloping runway 09-27 measuring 580 m x 15 m. Take-offs are only made facing east.

This is an uncontrolled aerodrome without Aerodrome Flight Information Service (AFIS). However, an aerodrome supervisor is present at the aerodrome (see para. 2.6.2).

2.3.2 Aeroplane information

The PA32-260 is a six-seat, single-engine, low-wing aeroplane with fixed tricycle landing gear.

N15902 was equipped with a Lycoming O-540-E4B5 engine delivering 260 hp and a Hartzell constant speed three-blade metal propeller.

It was also equipped with a Garmin Aera 660 GNSS computer, an emergency locator transmitter (ELT) and a personal locator beacon (PLB). The owner had added six life jackets on board.

N15902 had four wing tanks: two auxiliary tanks (2 x 17 US gal) and two main tanks (2 x 25 US gal), for a total capacity of 84 US gal.

A 5-position rotary selector is used to choose the tank that supplies the engine or to shut off the fuel supply. The positions are as follows (from left to right on **Figure 2**):

- when the first (left) position is selected, the fuel supply is shut off;
- when the second (left) position is selected, the left auxiliary tank is selected;
- when the third (centre) position is selected, the left main tank is selected;
- when the fourth (right) position is selected, the right main tank is selected;
- when the fifth (right) position is selected, the right auxiliary tank is selected.

The information on the position of the tank selected (right/left) is therefore asymmetrical compared with a centred reading.

When the selector is between two positions, the fuel supply is shut off⁵.



Figure 2: photograph of the fuel selector on a PA32 (Source: BEA)

Fuel management strategy

Different fuel management strategies exist for single-engine aeroplanes equipped with several fuel tanks. They all aim at distributing fuel consumption in flight so as to minimise lateral asymmetry in flight.

For short flights, full refuelling is not required. Only the main tanks are generally used. The pilot can then alternate between the two main tanks, for example at each stop. The Flight Manual recommends selecting the fullest main tank, after start-up and before take-off.

Performance and fuel endurance:

In standard conditions, the stall speed of N15902 in a clean configuration was 62 kt.

En route, the fuel consumption observed by one of the co-owners was between 14 US gal/h and 18 US gal/h (compliant with the Flight Manual). The fuel consumption for the flights made was estimated to be close to 8 US gal (about 30 l).

⁵ A pilot inspector reported that he experienced a decrease in engine power in flight on a PA32 due to incorrect positioning of the selector between two positions. Fuel supply was quickly restored when the selector was moved.

2.3.3 Site and wreckage information

The accident site was located in the sea near the aerodrome, to the east. The wreckage was found on 2 December at 14:33. It was lying 45 m deep underwater on a sandy sea floor. It was recovered on 3 February 2024 and stored in a hangar.

Photographs taken by the divers showed a complete wreckage. The right wing was detached from the fuselage and was lying around 10 m from the main wreckage. The left wing was detached from its spar and was lying near the wreckage.

Examination of powerplant

The engine was substantially damaged by seabed sediments due to prolonged immersion in seawater. Once the wreckage was refloated, the engine was separated from the wreckage and immersed in a tank filled with fresh water to try to limit oxidation/corrosion. Unfortunately, when the BEA arrived to carry out the examinations, it was observed that the tank drain valve was not watertight and that the fresh water had drained out. Only the rear cylinders 5 and 6 were still submerged.

No detailed examination was carried out on the engine. However, no visible ruptures were observed on the casings or cylinders. The components examined (valves, magnetos and related electrical system) did not reveal any particular fault.

Examination of the fuel selector:

A tomographic examination of the fuel selector was carried out at the BEA's laboratory. It showed that:

- the selector ports were open for the outlet to the fuel pump and for the inlet from the right auxiliary tank (RIGHT TIP);
- the ports of the other three inlets were closed.

A physical flow test was also carried out, confirming the observations made during the tomographic examination.

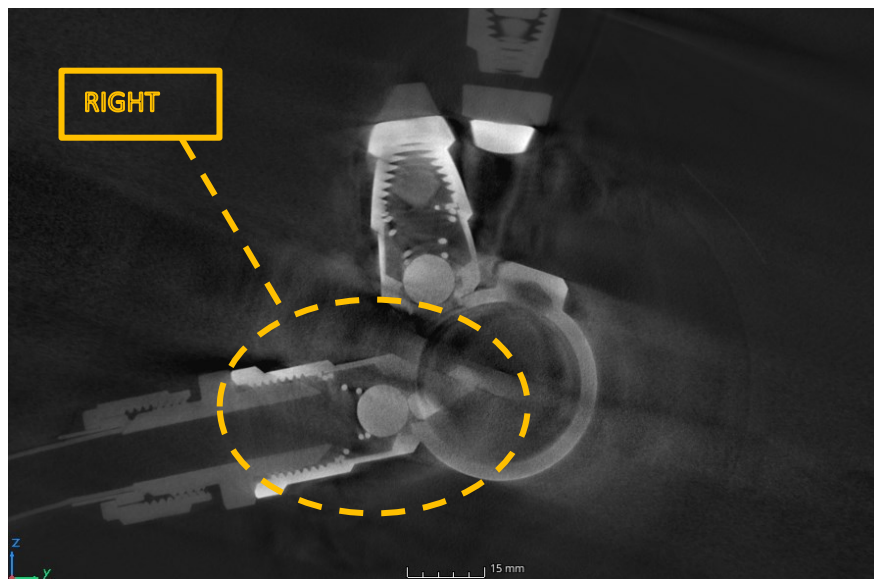


Figure 3: 2D tomographic image of the fuel selector (Source: BEA)

At the time of the impact, the right auxiliary tank (RIGHT TIP) was selected. Given the design of the fuel selector, it is highly unlikely that it changed position during the impact.

Given that the main tanks had been filled to maximum capacity before the flights began, the pilot was confident that he had enough fuel to make the planned flights. He had therefore no reason to suspect a problem with the fuel supply in flight.

In the event of a fuel supply fault during an initial climb, spluttering is often the first sign the pilot notices on a piston engine aeroplane. The engine does not stop immediately. These symptoms are often difficult to analyse⁶.

Based on the information available to the BEA, the N15902's weight and balance for the flights were calculated. The calculated values were within the limits of the weight and balance diagram taken from the Flight Manual.

2.4 Meteorological information

The atmospheric conditions were slightly anticyclonic with moderate trade winds. No hazardous meteorological phenomena were forecast.

The wind charts described a moderate flow: there was an easterly wind of 15 to 20 kt between FL020 and FL100. The forecast at 10 m was an east to north-easterly wind of 10 to 15 kt.

The Meteorological Terminal Air Report (METAR) for Pointe-à-Pitre airport, located 45 km north of the accident area, indicated the following: slightly cloudy sky, ceiling at 3,100 ft, 50° to 110° easterly wind of 13 kt, outside air temperature 29°C, dew point temperature 22°C and QNH 1,017 hPa.

2.5 Read-out of recordings

Analysis of the video taken by one of the passengers showed:

- a shift from the second flap detent position to the first flap detent position just after point ② (see **Figure 1**);
- a climb at constant (low) speed between points ② and ③, followed by a slight descent with no noticeable acceleration lasting 4 s, between points ④ and ⑤;
- a gradual increase in the aeroplane's attitude between 10:00:40 and point ⑤;
- the start of a right turn, followed by a loss of control during the turn and down to the surface of the water.

These observations are consistent with a reduction in engine power in climb, followed by an attempted U-turn, leading to a loss of control in turn.

2.6 Operation information

2.6.1 Inter-island aircraft operations in Guadeloupe

For several years now, "private flights" between the islands of Guadeloupe has developed, due to the lack of commercial air transport offers. Air Antilles used to offer connections between Pointe-à-Pitre and Marie-Galante, but since the airline went bankrupt in August 2023, these connections are no longer provided. As regards flights to La Désirade and Les Saintes, no airline holding an Air Operator Certificate (AOC) currently offers this type of service.

⁶ See the BEA study on [Reduction in engine power at take-off](#).

Sea transport - the only option available - suffers from a lack of flexibility and a limited number of slots. This boosts the development of “private” air transport services.

Even in the past, when scheduled inter-island flights did exist, their limited frequency and high prices already encouraged people to use “private” air transport flights. However, this type of activity is different from passenger commercial air transport activities and is not subject to the related regulations, resulting in a lower safety level.

These “private flights” are widespread in Guadeloupe and are advertised on various websites, including official sites such as tourist office sites. These sites provide contact details of pilots or organisations offering aeroplane leasing services.

It should be mentioned that these “private flights” are either provided as part of passenger transport services in the scope of own-account flights ([Article L. 1000-3](#) of the French Code of Transport), or as part of illegal transport of passengers.

One form of own-account transport is the leasing of an aeroplane by a customer from an owner (known as dry lease as per [Article L. 6400-3](#) of the French Code of Transport) with the use of a pilot contracted separately. For this type of activity, customers are fully responsible for the flight operation. However, they are rarely informed or aware of it. General aviation regulations apply here.

However, if the customer is simultaneously put in contact with a pilot and an aeroplane leasing company, then the transport operation falls within the scope of chartering (simultaneous provision of an aeroplane and a pilot by the same natural or legal person). Commercial air transport regulation applies to charter operations for remuneration ([Article L. 6412-6](#) of the French Code of Transport). Such an operation carried out without an air operator certificate and operating licence could be considered as illegal public air transport.

The differences between legal and illegal transport are not known by people who most frequently use it, including people living in the area, staff of private companies, staff of local authorities and tourists.

2.6.2 N15902 operating framework

One of the owners, who lives at La Désirade, indicated that he mainly used the aeroplane for personal reasons, to travel between La Désirade and Saint-François, located on Grande-Terre island. He added that he was not used to leasing the aeroplane and had made an exception for the accident pilot, because he knew him. In addition, the company’s articles of association made no provision for aircraft leasing.

Statements described this flight as an own-account flight, organised by one of the passengers (the instructing party), acting as representative for Tactis, for the benefit of the Regional Council of Guadeloupe and Tactis. The company therefore assumed the role of the operator of the aeroplane. It seems that the instructing party was not familiar with the aviation sector and did not know the requirements associated with this type of operation. The director of Tactis was contacted. However, he indicated that he did not know that an aeroplane was leased for the mission. He added that the passenger, if he signed an undertaking, did so in his own name.

2.7 SAR information

2.7.1 Triggering of alerting phases

The implementation of a Search And Rescue (SAR) system is defined as the provision of monitoring, communication, coordination, search and rescue functions in an emergency situation, including the provision of medical advice, initial medical assistance or medical evacuation, through the use of public and private resources, including aeroplanes, vessels and other cooperating craft and facilities.

The implementation of a SAR system is an obligation for the signatory States of the Chicago Convention. The provisions of Annex 12 of this same convention are incorporated in the French national regulation, in the [Order of 4 March 2022](#) laying down rules applicable to air traffic service providers. [Three emergency phases](#) are defined: INCERFA, ALERFA and DETRESFA, which respectively correspond to the uncertainty, alert and distress phases. Activation of the distress phase triggers the deployment of search resources.

Emergency phases can be triggered based on two main sources of information:

- When an aircraft is tracked by air navigation services, this organisation is responsible for triggering the alerting phases. For example, for a flight in uncontrolled airspace with a flight plan, if the flight plan is not closed, the first emergency phase (INCERFA) will be triggered 30 minutes after the estimated time of arrival.
- The search phases can also be triggered following the reception of a distress signal transmitted by an emergency locator transmitter. The COSPAS - SARSAT⁷ satellite surveillance system then detects the signal and transmit the alert to the competent authorities who will be in charge of rescue operations.

2.7.2 Specific characteristics of SAR in Guadeloupe

Aerodrome supervisors

In Guadeloupe, an aerodrome supervisor is present at each aerodrome. Aerodrome supervisors are employed by the departmental council and not by the French General Civil Aviation Directorate (DGAC). They cover the period from sunrise to sunset. This period is longer than normal working hours, so in general, the aerodrome supervisors are not always present at the aerodrome.

Aerodrome supervisors are informed of the traffic situation by radio. Each aerodrome supervisor is equipped with a portable VHF. They do not have access to the DGAC flight plan database.

The main role of these aerodrome supervisors is to ensure that the runway is in good condition by carrying out several daily inspections to remove any objects or debris (FOD⁸). They are also responsible for recording the arrival and departure of aircraft and the number of passengers on board. If they are informed of an accident, the aerodrome supervisors pass on the information to the departmental council, which in turn passes it on to the air navigation services. In the event of an emergency, the aerodrome supervisors can contact air navigation services directly.

⁷ SARSAT: Search And Rescue Satellite Aided Tracking. COSPAS is the Russian abbreviation for Space System for the Search of Vessels in Distress.

⁸ Foreign Object Debris.

Telephone coverage

Mobile phone coverage is incomplete in Guadeloupe, and some uncontrolled aerodromes are not equipped with a landline available to pilots.

The main telecommunications service provider in Guadeloupe assured that Les Saintes - Terre-de-Haut aerodrome is located within a coverage area. The aerodrome supervisor added that the telephone network is operational from the apron.

Procedures for activating flight plans

Provision of [SERA FRA.4001 e\)](#)

When a flight plan has been submitted and in the absence of an air traffic services organisation at the place of departure, the pilot-in-command shall inform an air traffic services organisation of his actual take-off time as soon as possible after take-off.

In Metropolitan France, the National Office for Flight Information and Assistance (BNIA) confirmed that pre-flight activation is possible.

The Regional Office for Flight Information and Assistance in French Antilles and French Guiana (BRIA Antilles-Guyanne) does not provide for this option. However, all flight plans can be activated in flight on first contact with ATS.

Procedures for closing flight plans

Provision of [SERA FRA.4020 d\)](#)

When communication facilities at the arrival aerodrome or operating site are known to be inadequate and alternate arrangements for the handling of arrival reports on the ground are not available, the following action shall be taken. Immediately prior to landing the aircraft shall, if practicable, transmit to the appropriate air traffic services unit, a message comparable to an arrival report, where such a report is required. Normally, this transmission shall be made to the aeronautical station serving the air traffic services unit in charge of the flight information region in which the aircraft is operated.

These late submissions and early closures of flight plans undermine the effectiveness of SAR by creating areas (coverage gaps) where SAR is delayed, while the safety concept supposed to guarantee surveillance is based on the mandatory submission of a flight plan (FPL) for VFR flights over sea areas ([SERA FRA.4001 b\) 3\)](#)).

These gaps in coverage are all the more critical when the approach or take-off path passes over a sea area, which is the case for many island aerodromes.

Moreover, approaches and take-offs are statistically known to be the phases most prone to accidents. The lack of immediate detection of accidents minimises the occupants' chances of survival.

2.7.3 Case of occurrence

Both the accident flight and the previous flight included a pass over the sea, making the submission of a flight plan compulsory. At 08:16, the pilot called the BRIA of Pointe-à-Pitre (Guadeloupe) and submitted three flight plans which indicated that there were only four people on board.

- FPL 1 (second flight on the day of the accident): The pilot took off on the A/A frequency from La Désirade at 08:46 bound for Les Saintes, where he landed at 09:07. When he left the aerodrome circuit, he contacted the FIS in Guadeloupe and his first flight plan was

activated. As the aeroplane approached Les Saintes, the controller suggested closing the FPL in flight. The pilot indicated that he would close it by telephone after landing, which he did at 09:11 with the BRIA.

- FPL 2: Les Saintes aerodrome is an uncontrolled aerodrome and flight plan activation is only accepted by radio in Guadeloupe. In Guadeloupe, activation by telephone is not authorised. As a consequence, pilots departing from Les Saintes can only activate their flight plan from an altitude that is sufficient to contact the Flight Information Service (around 1,500 ft). The departure time given on the FPL was 10:00. The pilot took off from Les Saintes at 09:59. At 10:01, at the time of the accident, the pilot had not yet contacted the FIS, so the flight plan had not been activated.

As the flight plan was not activated and the aeroplane was in uncontrolled airspace, the air navigation services had no knowledge of the traffic. As a consequence, no procedure provided for the triggering of alerting phases by air navigation services. Moreover, due to the fact that the aeroplane was quickly submerged, the distress signals transmitted by the ELT could not be captured by the COSPAS-SARSAT satellites.

In addition, there is no function for monitoring FPLs which have been submitted and have not been activated close to the scheduled take-off times. Such a function could draw the controllers' attention so that they check that the pilot has not actually taken off.

The aerodrome supervisor, who was present near the threshold of runway 09, saw the aeroplane line up and take off. He then lost sight of it because of the terrain. No anomalies drew his attention.

Chronology of search operations

The sequencing of events and search operations on 1 and 2 December was as follows:

1 December 2023:

- between 10:01 and 16:34, no calls were received by the BRIA. The alerting phase was not triggered;
- at 16:34, the owner of the aeroplane informed the BRIA that N15902 had not returned;
- between 16:40 and 17:02, the air navigation service in Guadeloupe (ANS-AG) launched telephone search operations as well as radar track search operations;
- at 16:45, the DETRESSFA phase was triggered;
- at 18:17, the SAR helicopter flew over the area where the accident was thought to have taken place, but did not detect any victims or debris;
- at 18:36, a Gendarmerie helicopter and a Customs' small craft arrived in the area;
- the helicopters suspended search operations due to the darkness.

2 December 2023:

- at 07:38, a SAR helicopter arrived in the area of the accident;
- at 08:00, a small craft from the Gendarmerie's nautical brigade arrived in the area;
- at 09:22, a Maritime Affairs vessel was on site;
- at 10:06 a Gendarmerie helicopter arrived on site;
- at 10:41, a DASH 8 aeroplane from the Dutch coastguard arrived on site;
- at 14:33, the wreckage of the aeroplane was found by Gendarmerie divers.

3 CONCLUSIONS

The conclusions are solely based on the information which came to the knowledge of the BEA during the investigation.

Scenario

The loss of control resulted from the attempted U-turn at low height, probably following a reduction in engine power in climb, shortly after take-off.

The reason for this reduction in engine power could not be determined.

- It was therefore not possible to bring to light a possible engine failure.
- Neither was it possible to determine whether the fuel selector position (found on “right auxiliary tank”) resulted from an error in the pilot’s selection at the start of the flight or from an input made shortly after the power reduction.

Incorrect selection of the right auxiliary tank, which contained only a small amount of fuel, would have caused fuel starvation and an uncommanded reduction in engine power.

If such an error did occur, it might then be explained by several factors:

- the short legs made, which consume a low amount of fuel and do not justify frequent and systematic tank switching;
- the asymmetry in the configuration of the PA32 fuel selector, making determining which tank is actually selected more complex (see para. 2.3.2) than with a centred left-right selector;
- the various types of aeroplanes used by the pilot for his professional activity, with different tank and selector configurations.

Safety lessons

An information note⁹ explaining the conditions and differences between commercial air transport and own-account transport was sent by the General Civil Aviation Directorate for French Antilles and French Guiana (DSAC-AG) to the State services in French Guyana and to a number of local authorities in order to make them aware of the nature of a flight for remuneration. This approach could be extended to other departments likely to show similar activities, with an emphasis on the fact that the responsibility for the flight operation is transferred to the customer, who becomes the instructing party.

A BEA report on the accident to the [PA46 registered N9190X](#) details the European and American regulations governing public and private air transport. The BEA thus recommended to EASA to “*establish regulatory requirements in order to guarantee the safety of passengers carried on-demand for remuneration outside commercial air transport operations*”, like American regulations do (14 CFR Part 135).

⁹ Letter 20-662/DSAC-AG/RDD dated 24 November 2020.

4 SAFETY RECOMMENDATIONS

Note: in accordance with the provisions of Article 17.3 of Regulation No 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation, a safety recommendation in no case creates a presumption of fault or liability in an accident, serious incident or incident. The recipients of safety recommendations report to the issuing authority in charge of safety investigations, on the measures taken or being studied for their implementation, as provided for in Article 18 of the aforementioned regulation.

4.1 Effective triggering of SAR phases based on the flight plan

The safety concept enabling an aircraft to be searched for and its occupants rescued in a maritime environment is based on the fact that the service responsible for SAR knows the position of this aircraft. In this context, regulations (SERA) require a flight plan to be submitted for aircraft flying under VFR over sea areas. However, the flight plan (FPL) is only effective if it is activated before take-off and not closed too early before landing.

Consequently, the BEA recommends that:

- *whereas take-off and landing are the phases most prone to accidents;*
- *whereas activation of the flight plan for uncontrolled aerodromes, when it is not possible before the flight, can be made over the FIS frequency at a height that is sufficient to allow radio contact, and closure can be made on the same frequency before landing at destination;*
- *whereas it is possible to close a flight plan by telephone;*
- *whereas ground activation of a flight plan by telephone is not provided for in the procedures of the BRIA Antilles-Guyane, contrary to the practices that may be observed in Metropolitan France;*
- *whereas aircraft flying under VFR can only benefit from the alerting service once their flight plan has been activated;*

DSNA ensure that the ANS-AG authorises flight plan activation by telephone with the BRIA before the aircraft actually takes off, and its closure after landing.

[Recommendation FRAN-2025-001]

The BEA investigations are conducted with the sole objective of improving aviation safety and are not intended to apportion blame or liabilities.