



Accident to the CESSNA 150L
registered **F-HTFS**
on 3 July 2024
at Vern-sur-Seiche

Time	Around 13:15 ¹
Operator	École de pilotage R.L.A.
Type of flight	Sightseeing flight, commercial
Persons on board	Pilot and one passenger
Consequences and damage	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.	

Fuel exhaustion, forced off-field landing, overturn²

1 HISTORY OF THE FLIGHT

Note: the following information is principally based on statements, radiocommunication recordings and radar data.

The pilot, who is also an instructor, planned to carry out a roughly one hour flight for the benefit of a passenger, departing from Rennes – Saint-Jacques airport, and bringing them around Mont-Saint-Michel. He arrived at around 11:15 at the flight training school premises. He consulted the weather information on two websites and then carried out a walk-around inspection during which he checked the quantity of remaining fuel using a gauge. He observed that there were 5 US gallons³ (18.9 l) in the right-hand fuel tank and 4 US gal (15.1 l) in the left-hand fuel tank, i.e. a total of 9 US gal (34 l).

As the passenger had not yet arrived, he decided to go to the refuelling station to top up the fuel and then return to the parking. On arriving at the station, he saw that he had forgotten his payment card and returned to the parking⁴.

¹ Except where otherwise indicated, the times in this report are in local time.

² The glossary of abbreviations and acronyms frequently used by the BEA can be found on its [website](#).

³ Anglo-Saxon unit of volume, the symbol being US gal. A US gallon corresponds to around 3.78 l.

⁴ The distance covered back and forth between the station and parking was 2,150 m.

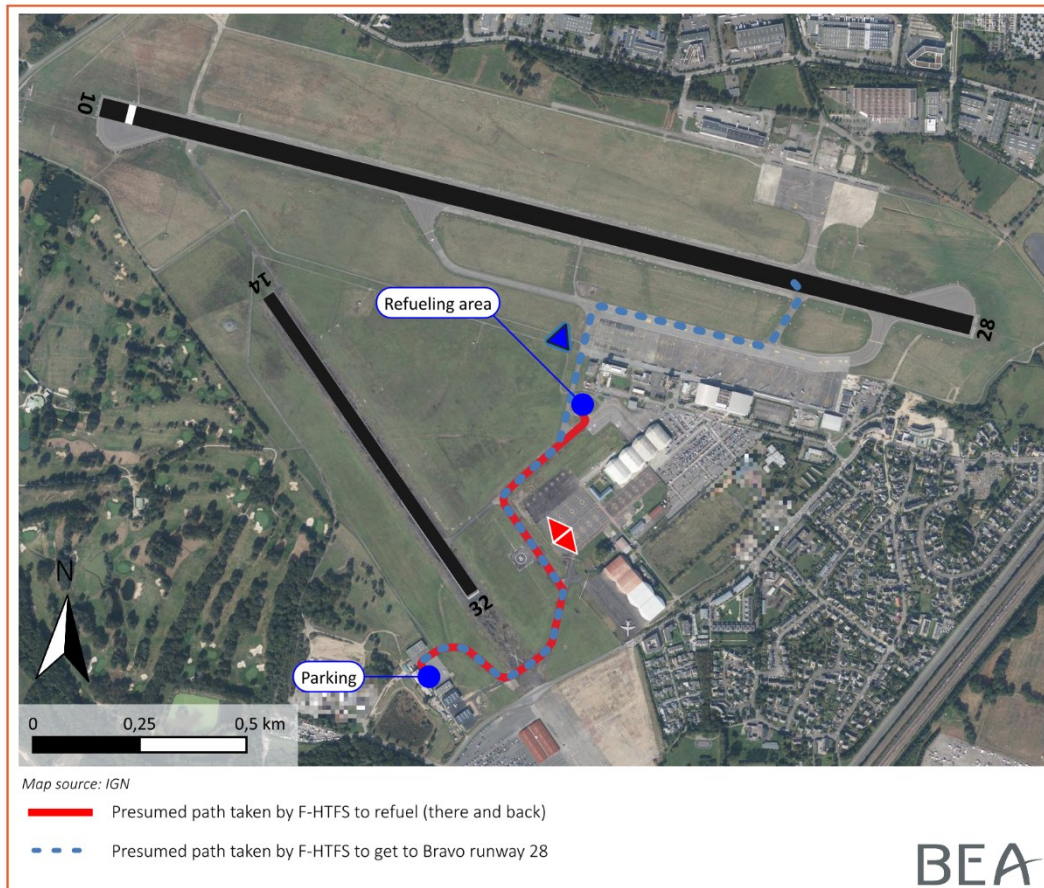


Figure 1: presumed path on ground

As the passenger had arrived in the meantime and the pilot considered that the remaining quantity of fuel was sufficient for carrying out the flight, he decided to postpone the top-up to after the flight.

The pilot presented the aeroplane to the passenger and gave him a briefing. At 12:05, after the start-up procedure, the pilot contacted the control tower and asked for clearance to taxi to runway 28.

At 12:13, the pilot was cleared to take off from runway 28. After taking off, the pilot climbed to an altitude of around 1,500 ft and headed to Mont-Saint-Michel. He globally held this altitude and an engine speed of around 2,400 rpm for the duration of the flight.

He indicated that the sky was overcast and that the needle of the carburettor temperature indicator had stayed above, but close to the icing temperature during the flight⁵. He emphasized that he had used the carburettor heat a dozen times during the flight for periods of 30 s to 40 s so as to avoid carburettor icing. After flying around Mont-Saint-Michel, the pilot took a return course back to Rennes.

⁵ The phenomenon of icing of the engine induction system was examined but not retained due to the observations made on the fuel system and the fuel consumption calculations.

The pilot indicated that north-east of Rennes, the engine lost power without shutting down. He thought it was incipient carburettor icing and used the carburettor heat. Around one minute later, the engine power returned to normal and the pilot stopped the carburettor heat. A few seconds later, the engine power decreased again.

At 13:06, the pilot transmitted a “Mayday” message (see **Figure 2**, point ①), indicating to the control tower that the engine was misfiring and asking for priority to land. The engine power increased again and then decreased again after three to four minutes.

The pilot took the most direct path to the airport while staying close to areas where he could carry out an off-field landing. Each time the engine lost speed, the pilot actioned the carburettor heat until the engine speed returned to normal.

At 13:08, the pilot indicated to the control tower possible carburettor icing and engine misfires (point ②).

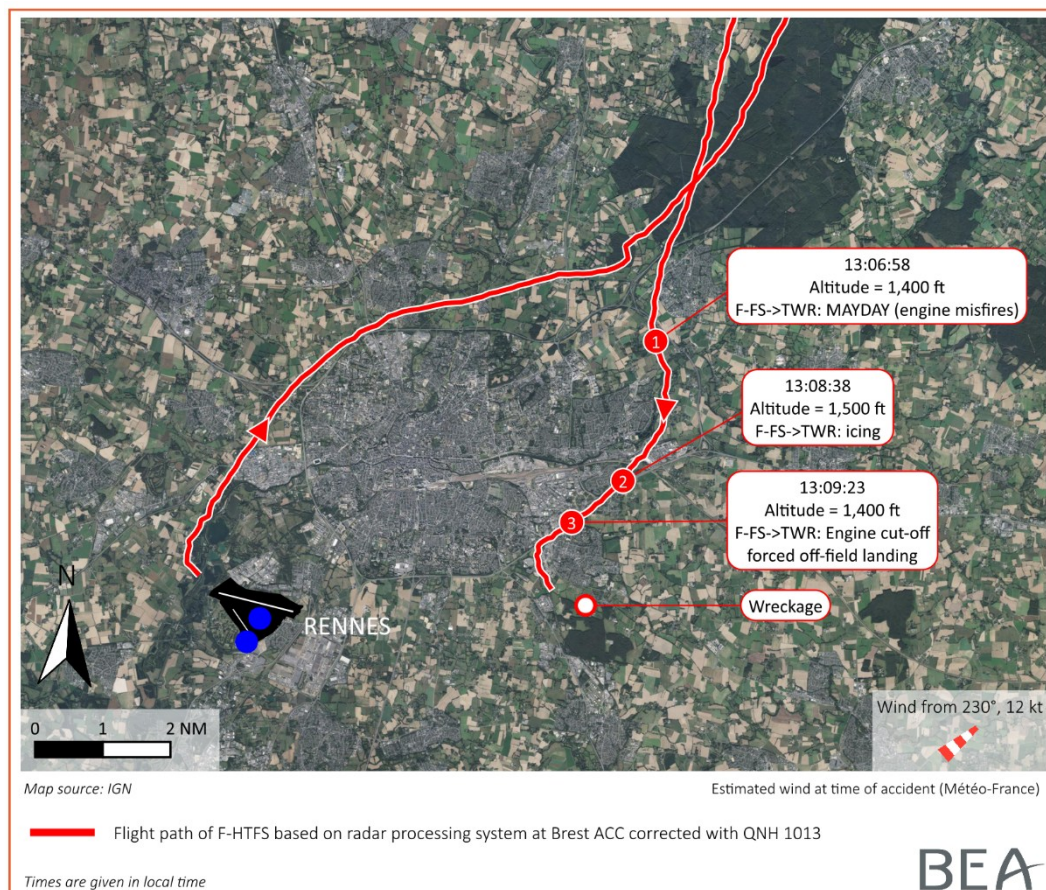


Figure 2: Rennes-Saint Jacques airport outbound and inbound flight path of F-HTFS

At 13:09, the pilot reported to the control tower that the engine was “cut-off” and that he was going to carry out an off-field landing (point ③). He identified a field and carried out the approach. He indicated that the engine picked up speed on short final. He pulled out to pass over a hedge. The engine stopped again. The pilot flared in a field of rapeseed. During the run, the aeroplane overturned. The pilot and passenger extracted themselves from the aeroplane unaided. Then the pilot contacted the tower to indicate their position.

2 ADDITIONAL INFORMATION

2.1 Pilot information

The pilot held a PPL(A). He had logged approximately 1,150 flight hours including 947 hours as pilot-in-command. He had logged approximately 12 flight hours in the previous three months, including 5 hours on type. The pilot also held an instructor rating since 2 June 2023.

The pilot explained that he regularly carried out non-remunerated flights when requested by the R.L.A. director. This activity enabled him to increase his experience. A few days previously, the R.L.A. director had proposed this flight to him. It was agreed with the parents of the passenger that the flight would take place during his midday break. The pilot specified that the flight had initially been planned for the previous day but that he had postponed it due to the adverse weather conditions.

The pilot explained that he had already carried out introductory or light instruction flights for R.L.A. several times. He specified that the accident flight was an introductory flight and not a light instruction flight. He added that he had observed on the passenger's arrival, that the passenger had an intellectual disability. This particularity had occupied his mind and resulted in him paying particular attention to the latter's feelings and reactions throughout the flight.

The pilot specified that he knew that the total quantity of unusable fuel was around 3 US Gal. He thought that he had a sufficient endurance to carry out the planned flight while being aware that he did not have the regulatory reserve fuel for it.

As the forced landing approached, he only made a brief input on the flap control⁶.

2.2 Context of flight

R.L.A. is a Declared Training Organization (DTO). It proposes training (including light instruction flights) and introductory flights.

The flight was purchased as a light instruction flight of two thirty-minute sessions on an e-commerce site. The associated price was € 399.

⁶ The forced landing procedure with engine power indicates that the approach must be carried out at a speed of 65 kt with the flaps in position 40°. Without engine power, the approach must be carried out at 70 kt with the flaps extended as far as necessary.

Vol d'Initiation au Pilotage d'Avion à Rennes

4,3 ★ 7 avis clients Aérodrome de Rennes Saint-Jacques-de-la-Lande - Ille et vilaine 35

Prenez les commandes d'un avion de tourisme en plein vol ! Impressionnant ? Oui, et c'est surtout passionnant ! Aux côtés d'un instructeur professionnel, vous apprendrez à gérer l'altitude et le cap d'un avion Cessna 172 ou 150 dans le ciel de Rennes.

Les formules

☐ 20 min de vol d'initiation au pilotage d'avion / 1 pers.	159 €
☐ 30 min de vol d'initiation au pilotage d'avion / 1 pers.	209 €
☐ MEILLEURE VENTE ! 40 min de vol d'initiation au pilotage d'avion / 1 pers.	280 €
☒ 2 x 30 min d'initiation au pilotage d'avion / 1 pers. - Mont Saint-Michel	399 €

Figure 3: screen shot of sport-decouverte.com⁷ website

While “light instruction flights” have no regulatory definition, they come under the scope of instruction flights and the flight is placed under the responsibility of an instructor. As R.L.A. is a DTO, it can propose this type of flight. The pilot was an instructor and could therefore instruct in this scope. According to the DSAC, no particular administrative steps with respect to a student have to be carried out before the latter starts their training programme. For example, a DTO is not required to declare beforehand, each new student-pilot to the DSAC. Furthermore, a class 2 medical certificate is only required for a student-pilot’s first solo flight.

A DTO can also propose introductory flights; these do not form part of a training programme and are not necessarily carried out by an instructor. The notion of an introductory flight is defined in Regulation (EU) No 965/2012, known as "AIR-OPS"⁸ which indicates the framework within which the flight is to be carried out, supplemented at national level by the order of 18 August 2016⁹. The framework applicable to introductory flights notably imposes:

- the appointment of an activity supervisor, notably to ensure the safety of the activity;
- dedicated documents including a safety policy covering the management of the risks specific to this activity;
- for the pilot, minimum experience (200 h), and if the pilot does not hold a CPL, recent experience (25 h on class or type in last 12 months);
- that the flight is carried out under VFR, is circular, lasts less than 30 minutes and remains within 40 km of the aerodrome;
- that the activity remains marginal, less than 8% of the flight hours and does not generate profits distributed outside of the organisation;
- that the activity is not the subject of a paid advertising campaign or canvassing.

Whatever the type of flight (instruction or introductory), paragraph NCO.OP.125 (b) of the AIR-OPS requires a final reserve fuel of thirty minutes for a VFR cross-country flight with this type of aircraft.

⁷ Page consulted on 26 September 2025.

⁸ Commission Regulation of 5 October 2012 laying down technical requirements and administrative procedures related to air operations ([Version in force on the day of the accident](#)).

⁹ [Version in force on the day of the accident](#).

2.3 DTO director's statement

The DTO director indicated that the planned flight was a light instruction flight with a student and not an introductory flight with a passenger. He emphasized that the instructor's misunderstanding probably arose from the fact that this was one of his first flights within the structure. However, he had had access to the school's documentation.

The DTO director added that he had not been informed of the intellectual disability of the beneficiary of the flight.

He explained that for the commercialized "2 x 30 min light instruction flight" service, the beneficiary is asked, before the flight, to indicate if they might be interested in pursuing pilot training. This service is regularly purchased as a present for individuals who do not intend continuing with pilot training. If the person expresses their interest in training, they are considered to be a student pilot and a one-hour instruction flight is carried out. Otherwise, two thirty-minute flights are organized by the company.

2.4 Meteorological information

The meteorological conditions estimated by the Météo-France services were the following: wind from south-west of 10 kt, visibility greater than 10 km, scattered showers but not affecting visibility, sky OVC (Stratocumulus) at 2,800 ft, temperature 19°C, dewpoint temperature 12°C, QNH 1014.

2.5 Aircraft information

The aeroplane, a Cessna 150, is equipped with an air-cooled, flat-four Continental O-200 engine providing a maximum power of 100 hp (75 kW). The engine is equipped with a carburettor.

2.5.1 Examination of wreckage

The BEA did not go to the accident site.

The examination of the stored wreckage did not find any technical problems on the aeroplane. The flap position indicator showed an extension of around 10°.

2.5.2 Fuel system

Figure 4 shows the composition of the aeroplane's fuel system. The diagram is taken from the 1971 flight manual, transmitted to the BEA by the R.L.A. director. The aeroplane is equipped with two fuel tanks, one in each wing, for a total quantity of 26 US gal, i.e. 98.4 l. The total quantity of unusable fuel according to the flight manual is 3.5 US gal, i.e. around 13.2 l. The system is open or closed; it is not possible to select one of the fuel tanks. Fuel is gravity-fed to the carburettor, the aeroplane is not equipped with a pump.

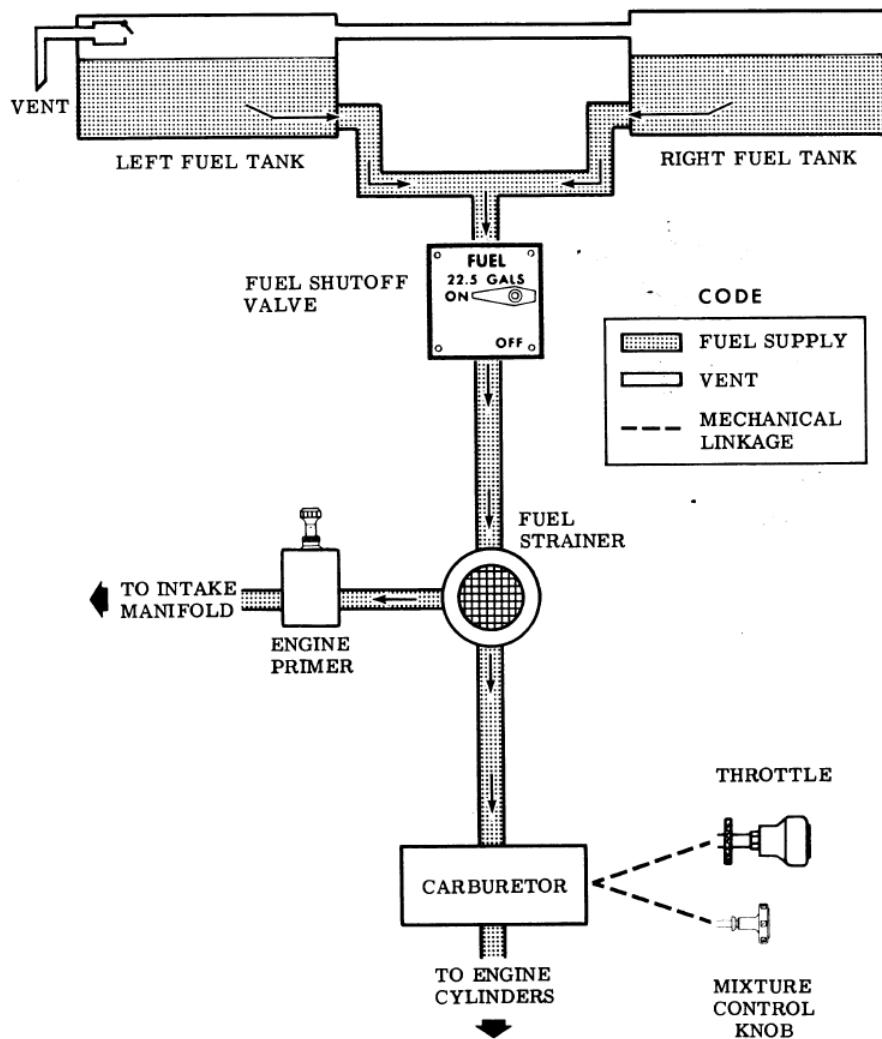


Figure 4: schematic diagram of fuel system (source: C150 flight manual)

During the removal of the wreckage from the accident site, statements regarding a smell of fuel and its “strength” differ: the GTA representatives did not detect any particular smell while the recovery vehicle driver indicated a perceptible smell. A very small quantity of fuel was collected from the tanks. As the aeroplane had overturned, there may have been fuel leaks and the quantity collected is not necessarily representative of the quantity present at the time of the accident.

During the examinations carried out by the BEA, ten millilitres of fuel were collected only from the carburettor bowl. No other sign of fuel was identified in the rest of the system.

2.5.3 Quantities of fuel required for this flight

As the planned duration of the cross-country flight was one hour, the usable fuel had to include the trip consumption (around 20 l) and the final reserve of 30 min (around 9 l). Taking into account the unusable quantity on this aeroplane, the quantity of fuel on board should have been at least around 42 l.

2.5.4 Consumption calculation

The aeroplane flight manual indicates the following consumption.

Altitude	Speed	US gal/h	l/h
2,500	2,400	4.6	17.4
5,000	2,400	4.3	16.3
7,500	2,400	4	15.1
10,000	2,400	3.7	14
12,500	2,400	3.5	13.2

Figure 5: fuel consumption table at 2,400 rpm/min according to altitude
(Source: C150 flight manual)

Based on the flight times and fuel top ups over the last three months indicated in the aeroplane log book, it is possible to calculate an average consumption of 18.31 l/h. Based on the average fuel consumption, the consumption for the accident flight is estimated as being 19.54 l¹⁰.

This estimation does not take into account taxiing from the parking to the fuel station and back to the parking before the flight nor the overconsumption linked to the repeated use of the carburettor heat system during the flight.

3 CONCLUSIONS

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

Scenario

The parents of the passenger had purchased a “light instruction flight” from an e-commerce site. The director of the DTO proposed this flight to the pilot. The latter accepted and scheduled it on his midday break. He prepared a circular cross-country flight of about one hour departing from Rennes - Saint-Jacques and bringing them overhead Mont-Saint-Michel. He prepared and undertook the flight as an introductory flight.

During the flight preparation, the pilot estimated that the quantity of on-board fuel was 34 l which corresponds to a usable quantity of 20.8 l. He taxied to the station to refuel but having forgotten his card, he returned to the DTO parking. Once back there, he observed that the passenger had arrived and changed his mind; he thus undertook the flight without refuelling and aware that he did not have the regulatory fuel reserve.

After a flight time of one hour and four minutes and several episodes of engine misfires which led to the pilot intermittently activating the carburettor heat system, the engine shut down. This flight time corresponds to an effective consumption of around 19.5 l without taking into account the fuel consumed when taxing back and forth between the parking and refuelling station nor the overconsumption linked to the repeated use of the carburettor heat system during the flight.

The pilot then carried out a forced off-field landing. During the run, the aeroplane overturned. The pilot and passenger, uninjured, evacuated the aeroplane.

¹⁰ For a flight time of one hour four minutes from the start of the run to the mid-air engine shutdown.

Contributing factors

The following factors may have contributed to the pilot undertaking a flight with an insufficient endurance and continuing the flight until fuel exhaustion:

- the pilot's inaccurate assessment of the endurance required for the flight associated with the non-compliance with the regulatory final reserve which constitutes a minimum safety margin;
- the time that the pilot could devote to this activity during his midday break which compromised his adaptation to certain unforeseeable events.

Safety lessons

The flight was commercialized and purchased as a "light instruction flight", this notion having no regulatory definition. The pilot prepared and carried out the flight as an introductory flight, without strictly complying with the regulatory framework which applies to it. All of his actions before and during the flight may have been affected by the specific attention that he paid to the feelings and reactions of the beneficiary of the flight.

On several occasions in the past, the BEA has highlighted the difficulties which a non-professional pilot is exposed to when they undertake a flight for the benefit of one or more paying passengers¹¹. A regulatory framework was set up to allow structures such as a DTO to propose introductory flights in appropriate safety conditions. The DSAC has devoted a paragraph concerning introductory flights in its guide for non-commercial operations with other than complex-motor-powered aircraft, ["Guide pour les exploitations d'aéronefs autres que les aéronefs motorisés complexes à des fins non commerciales."](#)

Other operation frameworks exist, which each provide forms of protection. For example:

- flights coming within the scope of a training plan can then be qualified as light instruction flights;
- commercial air transport means that the operator has to have a management system.

A flight undertaken outside the scope of these various frameworks may no longer benefit from all the safety principles defined by the regulations.

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

¹¹ See for example the [investigation report into the accident to the PIPER PA28 registered F-HDYN on 8 July 2023 on Lognes - Émerainville aerodrome](#). The subject has also been expanded on during the annual reviews of the safety lessons drawn from the investigation reports published by the BEA in [2024](#), [2022](#) and [2021](#).