CIAIAC

COMISIÓN DE
INVESTIGACIÓN
DE ACCIDENTES
E INCIDENTES DE
AVIACIÓN CIVIL

Report
ULM A-017/2017

Accident involving an AEROPRAKT A-22
aircraft, registration EC-GU4,
operated by the Binissalem aeroclub,
in the municipality of Escorca
(Mallorca, Balearic Islands, Spain)
on 8 October 2017

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Foreword

This report is a technical document that reflects the point of view of the Civil Aviation Accident and Incident Investigation Commission (CIAIAC) regarding the circumstances of the accident object of the investigation, and its probable causes and consequences.

In accordance with the provisions in Article 5.4.1 of Annex 13 of the International Civil Aviation Convention; and with articles 5.5 of Regulation (UE) nº 996/2010, of the European Parliament and the Council, of 20 October 2010; Article 15 of Law 21/2003 on Air Safety and articles 1., 4. and 21.2 of Regulation 389/1998, this investigation is exclusively of a technical nature, and its objective is the prevention of future civil aviation accidents and incidents by issuing, if necessary, safety recommendations to prevent from their reoccurrence. The investigation is not pointed to establish blame or liability whatsoever, and it's not prejudging the possible decision taken by the judicial authorities. Therefore, and according to above norms and regulations, the investigation was carried out using procedures not necessarily subject to the guarantees and rights usually used for the evidences in a judicial process.

Consequently, any use of this report for purposes other than that of preventing future accidents may lead to erroneous conclusions or interpretations.

This report was originally issued in Spanish. This English translation is provided for information purposes only.

Contents

Abbreviations

° C	Degrees centigrade
AESA	National Aviation Safety Agency
AEMET	National Weather Agency
AMT	Aviation maintenance technicia
AML/AESA	Maintenance technician license issued by AESA
AML/E	European maintenance technician license
h	Hours
kg	Kilogram
IMC	Instrument meteorological conditions
Km/h	Kilometers per hour
m	Meters
NNE	North-Northeast
TULM	Ultralight Pilot LIcense
UTC	Universal Time Coordinated

Synopsis

Owner and operator:	Binissalem Aeroclub
Aircraft:	AEROPRAKT A-22, registration EC-GU4
Date and time of accident:	8 October 2017 at 09:30 local time[1]
Site of accident:	Coll d'Es Prat - Escorca (Balearic Islands, Spain)
Persons aboard:	One (killed)
Type of flight:	General aviation. Private - Local
Date of approval:	31 January 2018

Summary of event:

On Sunday, 8 October 2017, one of the pilots at the Binissalem Aeroclub (Mallorca) took off early in the morning from the aerodrome by the same name aboard an AEROPRAKT A 22-L80 powered ultralight, registration EC-GU4, to go on a local private flight.

At approximately 09:30, as it was flying over the Tramuntana mountains, located northwest of the aerodrome near Coll D'Es Prat, in the municipality of Escorca, the aircraft collided in a rocky area against the side of the mountain, after which it caught fire.

The pilot was killed and the aircraft was destroyed.

The investigation has concluded that the aircraft impacted the ground while in controlled flight for unknown reasons.

Contributing to the accident is the fact that the aircraft was flying at a very low altitude in a narrow valley, which left very little room for the pilot to maneuver.

1 Unless specified otherwise, all times in this report are local. To obtain UTC, subtract two hours.

1. FACTUAL INFORMATION

1.1. History of the flight

On Sunday, 8 October 2017, one of the pilots at the Binissalem Aeroclub (Mallorca) took off early in the morning from the aerodrome by the same name aboard an AEROPRAKT A 22-L80 powered ultralight, registration EC-GU4, to go on a local private flight.

At approximately 09:30, as it was flying over the Tramuntana mountains, located northwest of the aerodrome near Coll D'Es Prat, in the municipality of Escorca, the aircraft collided in a rocky area against the side of the mountain, after which it caught fire.

The pilot was killed and the aircraft was destroyed.

Figure 1. Photograph of the aircraft at the crashsite

1.2. Injuries to persons

The pilot was killed.

1.3. Damage to aircraft

The aircraft was destroyed.

1.4. Other damage

There was no additional damage.

1.5. Personnel information

The pilot was 47 years old and had an ultralight pilot license (TULM) issued on 28 September 2017. He had a class-II medical certificate that was valid until 22 October 2017.

He had a total of 62:38 flight hours, of which 40:44 had been on the type.

The accident flight was only his second flight after receiving his license.

1.6. Aircraft information

The AEROPRAKT A 22-L80 powered ultralight, registration EC-GU4, was manufactured in 2017 with serial number A22L80-17-0074. It belonged to the Binissalem Aeroclub and was used by members to go on local flights. It was also used by the flight school run by the aeroclub to give training.

It is 2.4 m high, 6.225 m long and a wingspan of 9.55 m. Its empty weight is 286 kg and its maximum takeoff weight is 450 kg. It was equipped with a ROTAX 912UL engine, serial number 9580048, and a KIEVPROP 1.8-m diameter, variable-pitch propeller with three fiber blades and serial number 2631601.

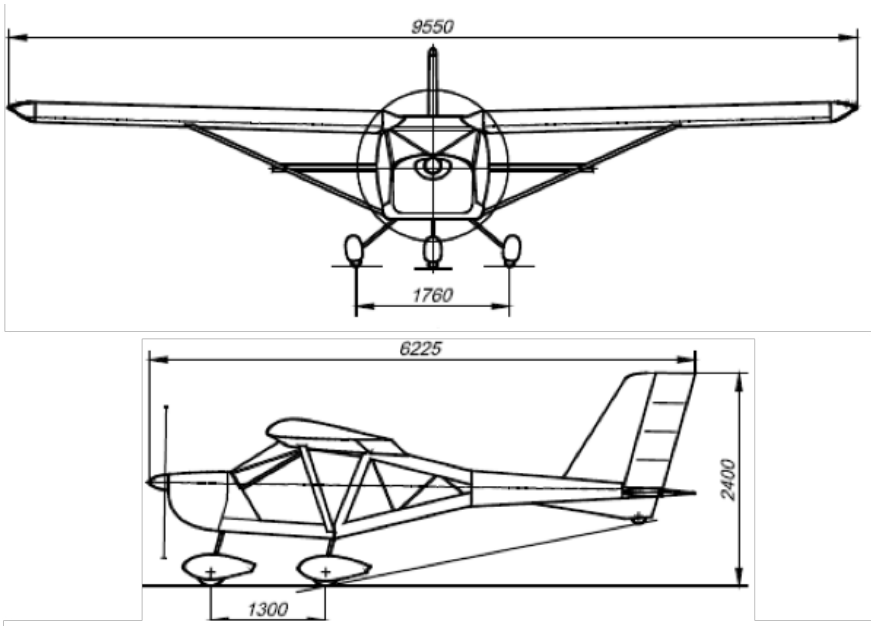

Figure 2. Front and side views of the AEROPRAKT A 22-L80 aircraft

It had a restricted airworthiness review certificate that had been issued by the National Aviation Safety Agency (AESA) on 6 June 2017.

Its last maintenance check had been on 3 August 2017, with 98:24 h on the aircraft and engine. The 100-h inspection of the aircraft and engine were performed by an AMT, with licenses AML/AESA 00000055 and AML/E 00034090.

On the day of the accident, both the airplane and engine had 187:36 flight hours.

1.7. Meteorological information

The weather conditions were not limiting for the flight.

According to the report provided by the National Weather Agency (AEMET), the general weather conditions at medium and high levels were governed by a high-pressure area.

At low levels, there was a high-pressure area northwest of the Iberian Peninsula that was creating relative low pressures over the southwest quadrant of the peninsula. The easterly flow early in the morning over the Mediterranean brought humidity and clouds into the area. The high temperatures were notable for that time of year.

At the time of the accident, there were few clouds and weak winds in the Balearic Islands. Between 09:00 and 09:30, the weather station near the Binissalem aerodrome recorded winds from the south at an average speed of 2 km/h, gusting to 11 km/h. During this time the temperature rose from 13º C to 16º C and the relative humidity was around 90%.

At 09:30, the station closest to the accident site, located in Lluc (8 km NNE), indicated calm winds, a temperature of 13º C and a relative humidity of 90%.

Remote sensing images (satellite, lightning and radar) showed no significant phenomena.

The photographs taken by the rescue team that reported to the site shortly after the impact show clouds in the nearby summits.

Figurea 3. Photographs from rescue personnel after the accident

1.8. Aids to navigation

Not applicable to this event.

1.9. Communications

Not applicable to this event.

1.10. Aerodrome information

Not applicable to this event.

1.11. Flight recorders

The aircraft was not equipped with flight recorders, as this was not required by law.

1.12. Wreckage and impact information

The aircraft wreckage was in the side of a valley next to a trail that was not accessible by car. A 15-minute walk was needed to access the site.

The airplane had collided directly with the terrain, with the bottom front of the fuselage impacting first, since there was no significant damage to the landing gear.

The propeller detached and remained at the impact site. The aircraft later caught fire and the rest of the fuselage slid downhill. There were no drag marks or marks of any other kind on the main wreckage or propeller. There were shards of glass from

the cockpit windows, parts of the engine cover and some smaller components next to the propeller. To its left, 6 m away in the direction of flight, was the right wingtip.

The fuselage was some 45 m downhill, creating a 320° angle with respect to magnetic north. All of the remaining components of the aircraft were grouped together.

Two of the propeller blades showed damage from the fire, but not from the impact. The third blade was broken.

The airplane came to a stop between two large rocks. The outer skin was still present on the tail, except on the rudders, but on the rest of the aircraft this skin had mostly been burned by the fire, especially in the wing, where only the structure remained. The two main beams had been bent downward by the effects of the heat.

Figure 4. Airplane wreckage

1.13. Medical and pathological information

The autopsy determined that the death was violent and accidental in nature.

1.14. Fire

A fire broke out after the impact that burned the aircraft.

1.15. Survival aspects

The direct impact against a rocky area of the mountainside and the subsequent fire made it impossible for the pilot to survive.

Emergency services reported to the scene very shortly after the accident, while the aircraft was still burning, and quickly extinguished the flames before removing the pilot's body from the wreckage.

1.16. Tests and research

It was not necessary to conduct any special tests or research.

1.17. Organizational and management information

Not applicable in this case.

1.18. Additional information

During the investigation, the flight manager at the Binissalem Aeroclub, who had been the pilot's instructor, was interviewed. This individual is a forest ranger and during the conversation stated that some colleagues of his, who were near the accident site, had told him that they saw some clouds partially cover part of the valley over a relatively short period of time. This happened at about the same time as the accident.

1.19. Useful or effective investigation techniques

No special investigation techniques were used.

2. ANALYSIS

The massive amount of fire damage to the wreckage made it impossible to determine the positions and conditions of the flight controls and other aircraft systems at the time of the accident.

The layout and location of the wreckage at the accident site, as well as the condition of the propeller, made it clear that the impact into the mountainside took place under controlled conditions, with the airplane level in a slight nose-up attitude.

Experience has shown that this type of accident usually occurs either when the pilot loses visibility as a result of entering instrument meteorological conditions (IMC), or when the geography of the terrain in the area over which the airplane is flying restricts maneuvering.

The weather information available indicates that weather conditions were not limiting for the flight, and that they had not fully deteriorated in the area where the pilot was flying before the accident.

However, the information provided by the people who were near the accident site, along with the statements and some photographs taken by the rescue team that reported to the site a short time later, which clearly show some clouds at a low altitude, leave open the possibility that the visibility at the accident site may have been partially lost.

However, in this specific case, it seems more likely that the pilot ran out of room to maneuver, since the valley was narrow and the aircraft was flying very low, as was verified by comparing the elevation of the impact point with that of the highest part of the mountain.

In any case, the geography of the terrain made it unlikely that the airplane would have been able to climb out of the valley from such a low altitude.

The investigation was also unable to determine for certain if the flight had been planned before takeoff, since any evidence that may have been aboard was burned by the fire. It was thus impossible to know if the pilot had checked the weather forecast before the flight, or if he had planned out a specific route on the map that included specific reference points, headings, altitudes, speeds and times.

That would be the correct way for a pilot to plan a local flight in visual conditions so as not to suddenly find himself in a difficult situation.

3. CONCLUSIONS

3.1. Findings

- The aircraft and engine were new and did not have any maintenance problems.
- The aircraft impacted the mountainside while in controlled flight.
- The pilot was killed on impact.
- After the impact, the airplane caught fire.
- The propeller remained at the point of impact and the rest of the airplane fell 45 m down the mountainside.
- Those aircraft components that detached did so as a consequence of the impact.
- The flight was not limited by the weather conditions.

3.2. Causes/contributing factors

The aircraft impacted the ground while in controlled flight for unknown reasons.

Contributing to the accident is the fact that the aircraft was flying at a very low altitude in a narrow valley, which left very little room for the pilot to maneuver.

4. SAFETY RECOMMENDATIONS

None.