



Accident to DELPECH AVIATION - MD03 TD "Transat"
identified **13SQ**
on 26 October 2018
at Beaucaire (Gard)

⁽¹⁾Except where otherwise indicated, times in this report are local.

Time	12:40 ⁽¹⁾
Operator	Private
Type of flight	Cross-country
Persons onboard	Pilot and one passenger
Consequences and damage	Pilot and passenger fatally injured, microlight destroyed
<p>This is a courtesy translation by the BEA of the Final Report on the Safety Investigation published in March 2020. As accurate as the translation may be, the original text in French is the work of reference.</p>	

Collision with ground, fire

1 - HISTORY OF THE FLIGHT

The pilot, accompanied by a passenger, took off from Salon Eyguières aerodrome (Bouches-du-Rhône) bound for Nîmes Courbessac aerodrome (Gard).

⁽²⁾This second explosion was no doubt the pyrotechnic device of the emergency parachute.

Witnesses saw the microlight pass over their property at a height which they estimated as being between 500 and 1,000 ft, before losing sight of it. They then heard engine misfires followed by an explosion and saw a column of smoke. They went to the site of the accident, observed that the microlight was on fire and heard a second explosion⁽²⁾.

2 - ADDITIONAL INFORMATION

2.1 Microlight information

The MD03 TD is a tandem two-seat, amphibious, biplane with conventional retractable landing gear. It is equipped with an uncovered 100 hp ROTAX 912S engine situated to the rear of the cockpit and an ARPLAST three-blade propeller.

The carburetors are equipped with a heat system which allows the pilot to select hot air instead of the cold air coming directly from the air filter. This system is a means of preventing or clearing icing.

The microlight's maximum glide ratio with the engine shutdown and landing gear retracted is 8 at 105 km/h.

⁽³⁾Shape of fuselage which facilitates planing.

A user indicated that the supplementary floats situated under the lower wings and the fuselage recess⁽³⁾ generate significant drag which means that the engine has to be used for landing.

The microlight is also equipped with an emergency parachute.

2.2 Examination of site and wreckage

The wreckage, situated in a vine field seven kilometres west of Beaucaire, was grouped together and orientated 335°.

The accident site was located in an agricultural area where nearly all the surrounding fields were either planted with vines or fruit trees and not suitable for a precautionary landing.

The microlight was destroyed by fire following the impact. The control surfaces were in place. Only the continuity of the yaw control and elevator trim could be validated.

An exhaustive examination of the engine could not be carried out due to its degraded condition. However, no failure was identified on the mechanical assemblies. The carburettor heat system was not found, the position of the system could not therefore be checked.

The parachute and its control were burnt.

2.3 Pilot and passenger information

The pilot, aged 81, had held a fixed wing microlight licence with passenger carrying privileges since March 1998 and a private pilot licence - aeroplane (PPL(A)). He had held an airline transport pilot license ATPL(A) up until August 1998. He had logged approximately 20,000 flight hours of which about 250 hours on type.

The passenger, aged 55, had held a fixed wing microlight licence since April 2016 and a private pilot licence - aeroplane (PPL(A)). He had held an airline transport pilot license ATPL(A) up until January 2016. He had logged more than 20,000 flight hours.

The autopsies carried out on the pilot and passenger did not reveal any element likely to explain the accident.

2.4 Meteorological information

Météo-France estimated the meteorological conditions on the site of the accident as being: wind from 050° at 4 kt, visibility above 10 km, broken stratus cloud based between 1,000 and 1,300 ft, overcast with cirrus clouds at high altitude, temperature 16°C, dew point temperature 11.8°C.

Very moist air was blocked under a thick subsidence based at around 800 m at Salon Eyguières and descending to an altitude below 600 m at Nimes. Two hours before the accident, the sky was covered by vast banks of stratus cloud which broke up with difficulty and in a heterogeneous manner due to the extensive cirrus clouds. It is very likely that low stratus cloud had remained on the eastern slope of the Garons plateau.

⁽⁴⁾<https://www.easa.europa.eu/document-library/general-publications/egast-leaflet-ga-5-piston-engine-icing>

⁽⁵⁾Other authorities dealing with aviation safety have also published diagrams of this type (United States, Canada, Australia).

2.5 Icing of piston engine carburetion systems

The document published by the European Aviation Safety Agency (EASA), “*Piston Engine Icing*”⁽⁴⁾ includes a diagram showing the degree of icing that can occur in a carburetion system according to the outside air temperature and the dewpoint temperature⁽⁵⁾. The characteristics of the powerplant are not taken into account.

For the same type of propulsion system as on 13SQ, the EASA document specifies that:

- the onset of icing in the engine carburetion system is shown by a drop in manifold pressure;
- when icing has started and hot air has been selected to remedy this, the engine’s nominal power may only return after an interval which may exceed 15 seconds.

Moreover, the temperature and humidity conditions known at the time of the accident were in an envelope characterized by a risk of serious icing of the carburetion system whatever the power conditions. These values can differ according to the given powerplant.

3 - LESSONS LEARNED AND CONCLUSION

Due to the fire which broke out after the impact, it was not possible to determine if the cause of the accident could be linked to a technical failure.

The results of the medical examinations revealed that there was no physical anomaly likely to explain the accident. However, pilot incapacitation cannot be excluded.

Icing of the engine carburetion system can be envisaged but without any certitude.

Given the height at which the microlight was flying and its glide ratio, in the event of a technical failure, the pilot did not have many options or much time to search for a suitable area for carrying out a precautionary landing.