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INVESTIGATION REPORT

Accident to the SOCATA TB10 registered F-GBHS

on 14 May 2020
at Toussus-Le-Noble (Yvelines)

Time	Around 11:25[1]
Operator	Trimaille Aéro Formation
Type of flight	Instruction
Persons on board	Instructor, student-pilot
Consequences and damage	Aeroplane substantially damaged

This is a courtesy translation by the BEA of the Final Report on the Safety Investigation published in April 2021. As accurate as the translation may be, the original text in French is the work of reference.

Engine shut-down on final, stall during flare before the runway threshold, in instruction flight

1 - HISTORY OF THE FLIGHT

Note: the following information is principally based on statements.

The student-pilot and the instructor planned to make a return flight departing from Toussus-le-Noble aerodrome bound for Pontoise aerodrome (Val d'Oise). Engine tests performed at the holding point were satisfactory and they took off at 10:00. At Pontoise, the student-pilot landed and returned to the holding point without stopping the engine. The instructor changed to the other tank[2] during taxiing. After arriving at the holding point, the student-pilot repeated the engine tests, which remained satisfactory.

During the return flight to Toussus-le-Noble, the student-pilot was authorized by air traffic control to join on long final for runway 07L. Approximately 4 NM from the runway, the student-pilot selected the approach configuration to slow down as another slower plane was ahead of them: he extended the flaps to 10°, activated the pump, the external light, the carburettor heating, then set the mixture control to full rich and completed the approach checklist. At the beginning of final, he extended the flaps to 25° then completed the landing checklist. Overhead the ILS[3] antennae, the instructor pointed out to the student-pilot that the speed was a little low. The student-pilot acted on the throttle lever to increase the power, but the engine did not respond. He pushed the lever to the full throttle position and the engine shut down. The instructor took over the controls at a height that he estimated to be around 100 ft. He checked that the pump and the carburettor heating were working and that the mixture was set to full rich, but did not have time to change to the other tank. He adopted a limited nose-down attitude as the plane was already close to the ground. He explained that he briefly considered retracting the flaps but did not do so[4].

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

[2] The TB 10 was equipped with two wing tanks.

[3] The ILS Localizer antennae are located approximately 560 m before the threshold of runway 07L.

[4] The flaps were found retracted at the accident site but some people had intervened on the plane before the arrival of the BEA. It was not possible to determine when they had been retracted.

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He announced over the frequency, "*We have lost the engine, MAYDAY, MAYDAY, MAYDAY, we are landing at the end of the strip*". He stated that the stall warning triggered during the flare. The plane struck the ground before the threshold and continued its run over the grass until it was on the runway whilst the engine partially separated from the airframe and the front landing gear ruptured. When the plane had come to a stop, the instructor switched off the battery and the alternator, closed the fuel selector and completely reduced the throttle. The mixture lever remained blocked on full rich. They evacuated the aeroplane unharmed and waited for the emergency services to arrive.

2 - ADDITIONAL INFORMATION

The accident occurred three days after the end of the first period of lockdown due to the Covid-19 health crisis. The plane had logged around 10 flight hours since the lifting of the lockdown restrictions.

2.1 Meteorological information

The METAR report for Toussus-Le-Noble aerodrome at 09:30 UTC[5] indicated a wind of 14 kt variable between 010° and 080°, a few clouds at 4,100 ft, a temperature of 11°C and a dew point of 01°C.

[5] 11:30 local time.

2.2 Examination of engine

The fuel tanks and system contained fuel. The engine was removed and examined at the BEA. It rotated freely and presented no damage prior to the accident that was likely to have caused a reduction in the power.

The damage to the engine following its separation was too substantial to enable the engine to be tested on a test bench. The engine accessories were removed then examined and tested by an ENAC (French aeronautics and aviation university) maintenance workshop. Only minor adjustment faults at the double magneto and the carburettor were observed. These elements could not explain an engine shut-down or a significant loss of power.

2.3 Pilot information

The 24-year-old student-pilot was taking an ATPL training course run by Trimaille Aéro Formation. He had logged 43 flight hours in the TB10 and was authorized to fly solo.

The 23-year-old instructor held a Commercial Pilot Licence - Aeroplanes (CPL(A)) and a restricted instructor rating. He had logged around 400 flight hours, 150 hours of which in the TB20 and TB200 and three flights in the TB10.

Both pilots explained that the taking of the controls by the instructor had occurred naturally and that there had been no confusion.

3 - CONCLUSIONS

The conclusions are solely based on the information which came to the knowledge of the BEA during the investigation. They are not intended to apportion blame or liability.

Scenario

On final to runway 07L at Toussus-le-Noble after a return cross-country flight to Pontoise aerodrome, the student-pilot was confronted with an engine shut-down. The instructor took over the controls but the low height of the plane at that time did not enable him to increase the speed. The plane stalled during the flare then struck the ground before the runway.

The examination of the engine was unable to explain the shut-down.