CIAIAC

COMISIÓN DE
INVESTIGACIÓN
DE ACCIDENTES
E INCIDENTES DE
AVIACIÓN CIVIL

Interim Statement IN-27/2012

Incident involving an Air Tractor 802 aircraft, registration EC-HMD, in San Rafael, Ibiza on 16 July 2012

GOBIERNO DE ESPAÑA
MINISTERIO DE FOMENTO

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SUBSECRETARÍA
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Important notice

This document constitutes the interim statement envisioned in Article 16.7 of Regulation (EU) no. 996/2010 of the European Parliament and of the Council, as well as in paragraph 6.6 of Annex 13 to the Convention on International Civil Aviation. The statement includes the details of the progress of the investigation and the most important operational safety issues revealed to date. The information provided herein is subject to change as the investigation proceeds.

Pursuant to the contents of Regulation (EU) no. 96/2010 of the European Parliament and of the Council and of Annex 13 to the Convention on International Civil Aviation, the investigation is purely technical in nature and is not intended to determine or apportion blame or liability. The investigation is being conducted without necessarily resorting to evidentiary procedures and for the sole purpose of preventing future accidents.

Consequently, the use of this information for any purpose other than to prevent future accidents may result in faulty conclusions or interpretations.

Abbreviations

CPL (H)	Commercial Pilot License (Helicopter)
FCU	Fuel Control Unit
LT	Local Time
m	Meters
MO	Manual Override
NTSB	National Transportation Safety Board (U.S.A.)
SB	Service Bulletin
TSB	Transportation Safety Board (Canada)
UTC	Coordinated Universal Time

DATA SUMMARY

LOCALIZACIÓN

Date and time	**16 July 2012 at 16:28 LT[1]**
Site	**San Rafael (Ibiza)**

AIRCRAFT

Registration	**EC-HMD**
Type and model	**Air Tractor 802**
Operator	**Martínez Ridao Tratamientos Aéreos**

Engines

Type and model	**PT6A-67AG**
Number	**1**

CREW

Pilot in command

Age	**30**
License	**CPL(A)**
Total flight hours	**1967**
Flight hours on the type	**420**

INJURIES

	Fatal	Serious	Minor/None
Crew			**1**
Passengers			
Third persons			

DAMAGE

Aircraft	**Significant**
Third parties	**n/a**

FLIGHT DATA

Operation	**Aerial work**
Phase of flight	**En route**

REPORT

Date of approval	**30 May 2013**

[1] All times in this report are local (UTC+2).

1. FACTUAL INFORMATION

The aircraft took off from the Ibiza Airport to take part in fighting a fire that had broken out on the island of Mallorca. While climbing, at an altitude of between 800 and 900 ft above ground level, the pilot noticed that the engine was losing power. He immediately dropped the water he was carrying and looked for a place to land. He attempted the in-flight engine re-start procedure but was unable to regain the power necessary to continue with the flight, so he proceeded to land on a field. During the emergency landing the aircraft sustained damage to its wings, propeller and front of the fuselage. The pilot was uninjured.

2. INFORMATION GATHERED DURING THE INVESTIGATION

The airplane landed on a clearing in a forested area, perpendicular to a row of trees that was aligned parallel to some power lines.

The first marks on the ground from the landing gear tires were identified some 200 m away from these obstacles, followed by deeper marks indicative of the brakes being applied. The landing run covered some 100 m, during which the airplane struck several trees, which helped to brake its forward motion. These impacts resulted in damage to the propellers (two of the five blades were bent), the lower left side of the fuselage around the engine and the leading edges of the wings.

The left fuel tank was completely full, while the right one was about half full. A subsequent analysis of a fuel sample taken from the airplane did not reveal any signs of contamination.

The throttle lever was in the idle position, the propeller was feathered and the fuel lever was in cut-off. The hopper was empty and the flaps were deployed.

An on-site inspection did not reveal any problems with either the engine ignition or fuel supply systems. There was continuity between the engine controls in the cockpit and the control unit, without any obstructions. An on-site borescope inspection also revealed no internal damage to the engine.

The aircraft had a valid airworthiness review certificate. The airplane was maintained by the operator, which is an approved Continuing Airworthiness Management Organization and Maintenance Organization Part-145. The maintenance records studied indicated that the aircraft's maintenance tasks, as specified in its maintenance program, were up to date.

The engine was sent to the manufacturer, which ran a bench test under the supervision of the TSB[2]. This test revealed that the engine was throttling down to minimum fuel power as the result of a loss of pressure in the belows charged with transmitting the compressor outlet pressure signal to the fuel control unit. The leak was caused by a crack due to corrosion on the diaphragm wall.

The engine manufacturer had identified the problem and issued a Service Bulletin (SB 14389[3]) that called for the replacement of the fuel control units with other units with a more robust belows before 27 January 2012.

The operator was aware of the Bulletin and had taken steps for its gradual implementation on all of the airplanes in its fleet. The incident airplane was scheduled to undergo the modification in September, at the conclusion of the forest firefighting season in the Balearic Islands.

The PT6A engines intended for use on single-engine airplanes feature an emergency mechanism for manually controlling fuel flow. It works by operating the fuel valve directly in the event of a fault in the FCU (the system is known by its initials MOR, which stand for Manual Override). In the case of the Air Tractor, this system is optional and is not installed on any of the operator's aircraft.

3. FUTURE ACTIONS

Accident investigation authorities in both the country of manufacture of the engine (the TSB in Canada) and the aircraft (the NTSB in the USA) are assisting the CIAIAC in gathering additional information on:

- Similar prior events and measures taken by the manufacturer, P&W, as well as an estimate on the number of units still in operation with the old FCU.

- Actions carried out by the engine certifying authority (Transport Canada) involving the failure detected in the diaphragms.

- The extent of implementation of the MOR system in the Air Tractor fleet and the role the presence of this system could have played in evaluating the risks associated with the failure of the FCU.

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[2] Transportation Safety Board of Canada. Canadian accident investigation authority. Canada is the State of manufacture of the engine (Pratt&Whitney).

[3] P&WC Service Bulletin 14389. Publication date: 3/07/2006. The bulletin was modified by:

- P&WC Service Nulletin 14389R1. Publication date: 26/06/2007.
- P&WC Service Bulletin 14389R2. Publication date: 23/04/2009. Expanded the applicability of the bulletin to converted -67AG models, as was the case of the engine installed on the incident airplane.
- P&WC Service Bulletin 14389R3. Publication date: 27/01/2011.