

**CIVIL AVIATION AUTHORITY OF THE PHILIPPINES**  
**Aircraft Accident Investigation and Inquiry Board**  
**Aircraft Accident Report**

**BASIC INFORMATION**

Aircraft Registration No. : RP-R146  
Make and Model : Cessna/A188 Ag-truck  
Owner/Operator : Philippine Agricultural Aviation Corporation  
Address of Operator : Gen-Av Area, Bangoy Airport, Sasa, Davao City  
Date/Time of Accident : 19 April 2014/0740H  
Type of Operation : Agricultural Spraying Flight Operation  
Phase of Operation : Cruising  
Type of Occurrence : Engine Failure  
Place of Accident : Brgy. Tagnanan, Mabini, Compostela Valley

**EXECUTIVE SUMMARY**

As early as 0535H on the morning of April 19, 2014 at Nova Vista Banana Plantation, an Aerial Sprayer aircraft, Cessna 188B Ag-Truck, RP-R146 owned and operated by Philippine Agricultural Aviation Corporation (PAAC) with one pilot on board, took-off for its first swathing mission. It was during the completion of the 8<sup>th</sup> of the final swathing operation at Tagnanan area, Mabini, Compostela Valley, where RP-R146, while cruising between 30-40 feet AGL on a shallow left turn at airspeed 85 kph just over the final approach at the end of Rwy 320° Gadi Airstrip, an occurrence of a loud explosion and shuddering vibration coupled with an upward vertical emission of white heavy smoke coming from the engine section was observed by the pilot on or about 0740H. At this juncture, with presence of mind, the pilot immediately decided to add power and engage the fuel booster but failed to correct the engine failure, hence, instinctively, performed the required emergency force landing procedures. In as much as the aircraft was at a low level condition between 40 to 50 feet AGL, time constraint was obviously a crucial factor while the decision making of the pilot at that particular instance was exercised with extreme caution and deliberate haste. Thus, with limited timeframe, the pilot without delay, stabilized and maintained aircraft control and focused in safely landing the aircraft straight ahead to the nearest landing field, a vegetation of banana plantation located approximately 10 meters from the feeder road and around 25 meters from the right side abreast ¼ portion of the active runway 320° on or about 0742H. (Appendix 1) Accordingly, the disabled aircraft upon the hard touchdown still continuously emitted heavy white smoke from the engine section which prompted the pilot to immediately extract himself from the cockpit thinking that the aircraft would explode, burn and trap him to death. At that moment, the pilot was able to hastily deplane and crawled out to the uneven ground around 10 meters away from the aircraft, where local residents started to arrive and secure the pilot to safety without injury. In the aftermath of the crash, despite the pilot's attempt to save the aircraft, it still incurred substantial damage due to the rugged condition of the terrain, camouflaged beneath a horde of banana trees. Furthermore, when an ocular inspection was conducted by the AAIB investigators, clearly material failure was the primary cause factor when upon opening of the engine

cowling, the upper crank case portion of engine cylinders no. 5 and no. 6 were damaged upon which a huge open cracked hole, four (4) inches in diameter was observed. (Appendix 2)

The pilot was advised to undergo medical examination as a standard operating procedure after an accident. Like wise, an on-the-spot interview was conducted by the AAIIB investigators with the pilot at the crash site aside from the scheduled formal interview at the office of AAIIB, CAAP with the primary objective of making the aircraft accident investigation official. Furthermore, the pilot was instructed to report for the required Physical examination at the CAAP Medical Clinic as soon as possible (ASAP).

## **PROBABLE CAUSE**

The Aircraft Accident Investigation and Inquiry Board determined that the probable causes of this accident are the following:

- **Primary Cause Factor**

Engine power failure during flight as result of broken 12 point spiral lock nuts that holds the connecting rod assembly of engine cylinders no. 5 and no. 6. (Material Factor)

- **Contributory Factors**

- a. The PAAC maintenance personnel have been remiss in their primary duty of proper maintenance of the aircraft they are bound to keep operational and airworthy at all times. (Human Factor)
- b. The Approved Maintenance Organization (AMO) does not have a strong independent quality assurance system as well as designated quality inspectors to monitor compliance with the procedures and provide an inspection system that ensures the proper conduct of the overall maintenance activities. (Human Factor)
- c. Non-compliance of a Critical Service Bulletin of Teledyne Continental Corporation issued on April 4, 1999 and revised on April 22, 1999 in the aftermath of seven (7) reported crankshaft fractures that occurred on engines manufactured during 1998 may have been a contributory factor. (Human Factor)

## **SAFETY RECOMMENDATIONS**

As a result of this investigation, the Aircraft Accident Investigation and Inquiry Board made the following safety recommendations:

- **CAAP-FSIS** shall ensure the strict implementation of standard application of quality assurance aircraft maintenance program for all agricultural sprayer aircraft.
- **CAAP-FSIS**, Airworthiness Department shall lay down provisions for all sprayer aircraft companies in coordination with an Approved Maintenance Organization

(AMO) to strictly conduct regular training of their maintenance personnel especially in the proper upkeep and maintenance of the aircraft they are bound to handle.

- CAAP-FSIS, Airworthiness Department shall review the organizational set up of all Agricultural Aircraft Operators (AAO) who are duty bound to strictly abide with the rules and regulations stipulated in PCAR, Part 6 defining that the AMO shall establish an independent quality assurance system.
- CAAP-FSIS, Airworthiness Department shall strictly implement past and current safety bulletins issued by aircraft manufacturers especially those related with aircraft accidents involving their manufactured aircraft.