

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

BASIC INFORMATION

Aircraft Registration	:	RP-C8847
Aircraft Type/Model	:	Cessna 152
Owner/Operator	:	Omni Aviation Corporation
Address of Operator	:	Omni Aviation Complex, Angeles City, Pampanga
Date/Time of Accident	:	May 4, 2014 / 0938H
Type of Operation	:	Flight Training
Phase of Operation	:	Cruising
Type of Occurrence	:	Engine Failure
Place of Accident	:	Paniqui Airstrip, Brgy. Abogado, Paniqui, Tarlac

EXECUTIVE SUMMARY

On the morning of May 4, 2014, after performing the routine 360 degrees visual inspection of the aircraft, Cessna 152 with Aircraft Registry No. RP-C8847 owned and operated by OMNI Aviation Corporation based in Clark Freeport Zone, Pampanga, started engine on or about 0900H and took-off from OMNI Airstrip, Clark Airfield, Pampanga at about 0912H for a cross country navigation solo flight training with the following itinerary as indicated in the flight plan: OMNI-RPUS-RPUQ-RPUS-OMNI. On or about 0938H when about 2 Nautical Miles (NM) Southwest (SW) of Paniqui, Tarlac, the student pilot experienced a severe engine vibration coming from the front engine section of the aircraft where she immediately informed OMNI authorities of her predicament and was instructed to land the aircraft to the nearest possible safe landing field instead of returning back to station. While descending from 3,500 feet to 2,500 feet, the student pilot immediately maintained aircraft control, checked the oil pressure and temperature and found out to indicate normal reading. However, in contrast, the Cylinder Head Temperature (CHT) reading was irregularly dropping until it reached the dangerous Zero "0" indication. Moreover, the throttle was found out to be unresponsive, when placed at full throttle setting, where the RPM reading dropped to 2200 RPM way below the normal reading of 2500 RPM. At this juncture, while at late downwind and parallel to Paniqui Airstrip, the student pilot further experienced, a deteriorating engine vibration, a dead stick or propeller stoppage and attempted to restart the engine but to no avail. Thus, at 1,300 feet altitude, the student pilot initiated an engine power failure emergency forced landing at Paniqui Airstrip performing the normal traffic pattern, final approach and touched down at approximately 200 feet from the threshold of runway 25 and made a landing roll and stopped at around 600 feet from touchdown point or estimated to be at the mid-runway. When the aircraft stopped to a halt on or about 0948H, the student pilot performed the routine engine shutdown, checked all instruments before finally disembarking from the aircraft. At this point, the student pilot made a routine 360 degrees visual inspection and observed there was an

excessive oil leak coming from the engine. The OMNI Aviation maintenance personnel immediately rushed to the site and checked the subject aircraft. The student pilot was unhurt and reported the accident to the OMNI Flying School authorities who then reported the accident immediately to OIC, AAIIB about the incident for information and appropriate action. The aircraft was secured by the OMNI maintenance recovery team before the arrival of the AAIIB investigators for inspection and evaluation on what transpired and determine the extent of the damaged engine assembly.

When the engine cowling was subsequently opened by the AAIIB investigators, surprisingly a detached and broken engine push rod from the engine was observed to have been detached and may have rolled and found its location behind the propeller assembly. The aircraft was later cleared by the AAIIB investigators for the immediate transport of the ill-fated aircraft to the OMNI station hangar and the involved engine to undergo the required engine teardown inspection in order to make a more exhaustive and credible final report on the primary as well as the contributory cause factors of the aircraft accident.

PROBABLE CAUSE

The Aircraft Accident Investigation and Inquiry Board determined that the probable cause of this accident was:

- **Primary Cause Factor**

The occurrence of an engine power failure during flight as a result of a damaged engine cylinder number 3, which specifically broke and detached from the main engine crankshaft, prompted the student pilot to execute an emergency forced landing to the nearest safe landing field. (Material Failure)

- **Contributory Factors**

Lapses in Maintenance and Operational Procedures. (Human Factor)

- a. The procedures in the conduct of 360° degrees visual inspection being performed by the aircraft mechanics does not include the removal of cowling to visually check the engine hence; the only time the engine is checked thoroughly is during the 50 hours and 100 hours periodic inspections. Opening of the engine cowling should be included in the 360° visual inspection especially before any flight for the day.
- b. The use of unauthorized cleaning detergent such as kerosene on the engine during inspection is a manifestation of poor maintenance procedure. The use of kerosene and not the authorized detergent in cleaning the engine causes the nuts and bolts of the engine assembly to corrode thus, limiting the integrity of these parts when it comes to its durability and lifespan. The information bulletin published by the FAA is already a manifestation of problems being encountered by Lycoming engines when it comes to the stud bolts attached to the crankcase that holds the cylinder of the engine.

SAFETY RECOMMENDATION

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

- CAAP, FSIS (ATOCID) shall review all Flight School Training Procedures on the following:
 - a. The incorporation in the checklist of a procedure in the mandatory opening of the engine cowlings during the conduct of the 360° visual inspection on all training aircraft to fully check the engine of any discrepancy before any flight schedule.
 - b. The Flight School Maintenance shall strictly ensure the use of authorized degreaser instead of kerosene to clean the engine. Likewise, the flight school shall make it a standard operating procedure (SOP), the use of tap water during the conduct of the regular and general cleaning activities of the aircraft and the engine assembly.
 - c. The full implementation of the published Special Airworthiness Information Bulletin from FAA Aviation Safety dated March 24, 2014 on the subject: Reciprocating Engine-Cylinder Mounting Studs to all users of Lycoming Engines by the FSIS, Airworthiness Division.